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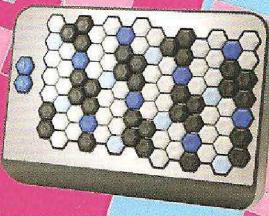
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welcome

By the time you read this – and assuming we make it smoothly through the vagaries of Apple's App Store approval process – **cm**'s very first iPhone app should be available!

Computer Music: Make Music Now, Vol 1 is an audio sequencing toy for iPhone and iPod Touch. In no way meant as any kind of rival to the high-powered likes of BeatMaker and Xewton Music Studio, **cm: MMN Vol 1** (as it shall henceforth be abbreviated) is intended to introduce newcomers to the fundamental concepts of loop-based production, and provide a bit of on-the-go amusement for those already 'in the club'.

As the 'Vol 1' bit implies, this is the first in a series that we hope to add to quite frequently, and each Volume will feature loops in a different genre. For this first one, that genre is dub, and you'll find drum, bass, percussion, guitar and electric piano loops in there, all ready to be chopped up, laid out and mixed.

Developed by Hige Five (creators of the equally entertaining **Aura**), **cm: MMN Vol 1** should be available in the App Store right now, at the unquestionably reasonable price of £0.00. If it's not, glue an eye to

www.computermusic.co.uk, where we'll be sure to keep you updated.

ENJOY THE ISSUE...

Ronan Macdonald **Editor**



The **cm** Mission Our goal is to help you create great music with your PC or Mac. With that objective always in mind, we bring you step-by-step tutorials on all aspects of software-based music production, unbiased reviews of the latest products, technical Q&As, and a Dual Layer DVD-ROM packed with exclusive software and samples.



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Essential cm

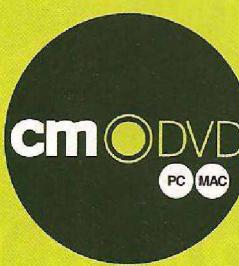
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PDF GUIDES FOR NEWCOMERS

If you're a rookie, check out the **CM Beginners** folder on the DVD - a library of material put together to help you get your head around many basic computer music concepts

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Message of the month

Biting into Apple

I'm very disappointed to hear Apple have finally decided to drop support for PowerPC and concentrate solely on Intel Macs with Mac OS X 10.6 Snow Leopard. I see this as a cynical marketing ploy: Apple, having cut their PPC support, now expects to see increased profits from PPC owners who have to buy new Intel Macs to run the latest software.

I am certainly not happy to see my PPC iMac, purchased just over three years ago, on its way to becoming obsolete! I would have imagined that five years would have been a reasonable life span for a computer. What really strikes me about this situation is how fast yesterday's state-of-the-art technology can become tomorrow's '8-track cassette'! (It's ironic that computer technology becomes so quickly

antiquated, while musical equipment from yesteryear, such as my old Marshall amp, Gibson Les Paul and Roland analogue keyboard, all keep improving with age and holding their market value!) I also can't help but see Apple's shift as completely at odds with their environmentally-friendly public persona. If Apple really cared about sustainability, they'd avoid creating landfills full of unwanted PPCs!

As a footnote, it's heartening to hear that Logic 9 is indeed Universal Binary and runs on PPC - I've installed it and haven't experienced any problems! With Logic 9 running on PPC, maybe the company do have a tiny conscience and have just given us PPC users one last bite of the Apple before Snow Leopard appears and changes things forever...

Steven Separovich, London

The writer of our Message of the Month will receive a copy of Rob Papen Blue for Mac and PC, worth £165, courtesy of Rob Papen and Time+Space! www.timespace.com



Well balanced

I'm a subscriber to your magazine, and I'm really pleased with the September 2009 issue. A really pleasant surprise was the feature *The Balancing Act*! It was really brilliant, and has been the most useful tutorial for me in a long time.

I think the most loathsome problem for me and all the music producers I talk to is editing/arranging/composing your song. Everybody with a talent can get to a point where a nice-sounding musical loop is rolling, but it's bothersome to make a song out of it. That article was all about how to build up your track – consciously.

I've now stopped just adding up more and more instruments, and started to make slight adjustments during

verse-to-chorus transitions, which was always a difficult task.

By the way, I'm a drum 'n' bass producer, and I found this article highly useful for the genre, and not just for pop-rock. I really recommend that everyone try out the tutorial!

Peter Almosdi, Budapest, Hungary

The Balancing Act aimed to get you thinking of your tracks as complete arrangements from the off

As do I, of course. If you missed it, head to p113 to get your mitts on a back issue. RM

Back in the mix

I enjoyed reading *Computer Music* as a teenager, and the tips and tricks within encouraged me to continue my craft.



Alas, in my early 20s, I was afflicted with hyperacusis – pain caused by being extremely sensitive to noise – and following deep depression (including my Dad's death), I disassembled my studio.

After many massive changes, including moving from Canada to Stateside (haven't visited England yet, but it's a lifelong dream) and finding the love of all my lives, I got an M-Audio controller and began to improvise piano melodies again.

My ears are still off, but more resilient. Not long ago, I started acquiring software for my Mac Pro that took time to get used to. Ableton Live and NI Komplete were quite the musical rehabilitation; soft synths and copious effects still have me giddy and delirious. And in

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Need to keep your collaborations in sync? Why not try Dropbox?

wanting to catch up with what's useful and fun in the world of technology-based tunes, I picked up *Computer Music* after all these years and have subscribed again. It feels like a true 'welcome home' to my sonic soul.

I wanted to share it with you, so you know that, in addition to rockin' out, your mag has a positive emotional impact on human beings searching for hope through creativity.

Torley, Washington, USA

Welcome back! Great to hear that you're back in the saddle, so to speak, and I hope the hyperacusis continues to improve. RM

"Thanks very much for bringing Record to my full attention - I love it and fully intend to buy it when I can afford to"

Dropping hints

I'm writing to tell you about one of the greatest additions to our studio setup and it has nothing to do with music. It's called Dropbox (www.getdropbox.com).

I make DnB, using Ableton Live in London, with another guy who lives in New Zealand. We've gone through no end of pain with the following:

"It's too big to email."

"Why is the FTP not working? What was the login again?"

"Do you have the latest copy, or do I?"

This is all now a thing of the past. DB looks and works like a normal folder, but in the background, it's synced to an

online copy of that folder and any other computers that have it installed. We have our current project in this folder, and as soon as I save a change, it can be accessed at home, at work, in New Zealand or on any machine with an internet connection - ie, change the contents anywhere, have it everywhere.

To top it off, DB keeps a copy of your modified files, so if you're a spoon like me - and accidentally deleted that great piano part a week ago and didn't realise it - you can go back into the history and recover that version!

I recommend everyone who is collaborating to give it a go - it's free for a 2GB account.

Rupert Brown, London

Why, at that price, it would be madness not to! RM

For the Record

I wasn't particularly interested in Propellerhead's Record, until I read your guide in cm143, which intrigued me so much that I signed up for the open beta. And man, am I glad I did? It's wicked! I thought it would be a bit of a joke, but I couldn't have been more wrong - it's powerful, stable and efficient, plus it sounds great.

So thanks very much for bringing Record to my full attention - I love it and fully intend to buy it when I can afford to. That Roosevelt High track that the tutorial was based on was excellent, too!

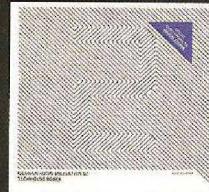
Mephisto, London

A joke it most certainly is not. Record is a magnificent new contender in the high-end DAW market and I'm very much looking forward to seeing how it fares and develops in future. Exciting computer musical times indeed... RM

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Riemann Kollektion
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Eagerly anticipated second release on Florian Meindl's label that takes a laid-back tribal, afro-influenced route. Essential. £19.95



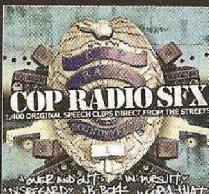
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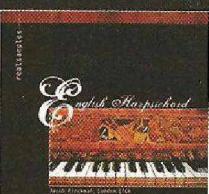
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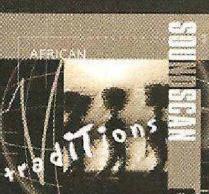
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NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Cakewalk Sonar 8.5

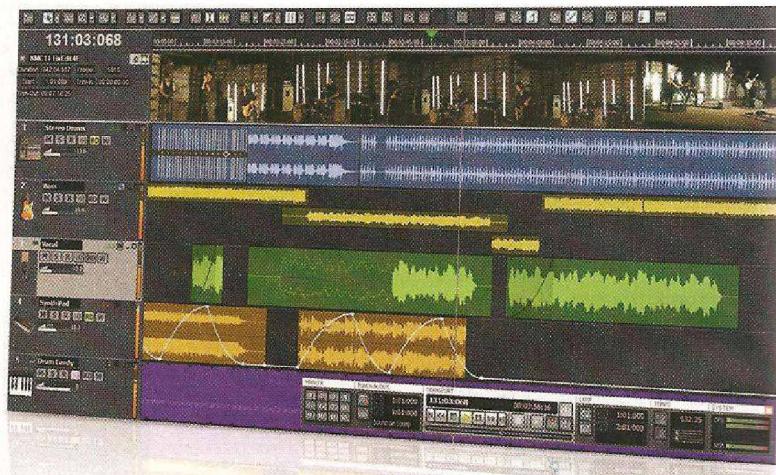
A packed point release for the popular DAW, including new drum and vocal plug-ins -

> Computer musicians of a certain age will recall that Cakewalk was originally the name of a MIDI sequencer that debuted way back in 1987. The app was reborn as Sonar in 2001. Regular yearly updates have seen it flourish into a popular powerhouse of a DAW, and now we have Sonar 8.5...

Thankfully, this update is far from a just collection of under-the-hood tweaks and it may even have some wondering why Cakewalk didn't just call it Sonar 9. We quizzed the Bostonian boffins about this and they explained that, with the economic climate being what it is right now, they instead decided to issue a comprehensive point release with an affordable upgrade route, rather than a full-on new version.

The major new features include two new plug-ins - the PX-64 Percussion Strip and the VX-64 Vocal Strip (both seven-stage processors for treating drum tracks and vocals respectively) - and Session Drummer 3, which comes with 20 drum kits. Plus, there are v2 updates for the Step Sequencer and AudioSnap, the latter being Cakewalk's audio quantising and timestretching system.

Perhaps most unexpected is the new non-linear cell-based Matrix View for triggering audio and MIDI loops on the fly - it looks rather like Ableton Live's Session View or, indeed, the Groove Matrix of Cakewalk's own Project 5. Elsewhere, there's an arpeggiator (with hundreds of presets) to be found on each MIDI and Instrument track,



Not much has changed visually-speaking from v8, but there's plenty of new stuff below the surface

and the Media Browser now supports more file formats, including Rex, which can now be used natively in the Track View.

More mundane improvements include general "engine optimisations" that should make for generally smoother performance and greater stability. BitBridge, which enables Sonar to use 32-bit plug-ins while running under a 64-bit OS, has been beefed up to

BitBridgeXR, making a total of 128GB of RAM available for such plug-ins. Oh, and Sonar 8.5 is compatible with Windows 7, too.

Sonar 8.5 Producer (£435) and Sonar 8 Studio (£265) are out now for Windows only. For those upgrading from Sonar 8, the price will be £109/£89 for boxed versions and £89/£69 for downloads.

www.cakewalk.com

Waves Kram in more effects

Get hold of another top producer's 'sound' - this time, Eddie Kramer

> Eddie Kramer, producer of such heavyweights as Jimi Hendrix and The Beatles, has teamed up with Waves to release the Eddie Kramer Collection. The plug-in bundle is said to put Kramer's 'sound' at your disposal.

You get channel processors for vocals, bass, guitar and drums, along with the Eddie Kramer Effects Channel (reverb/delay), all

designed in collaboration with the man himself. Little is revealed as to what the plug-ins actually do under the hood - in theory, you can throw them on your tracks, turn a few knobs and enjoy 'instant Eddie'!

Waves Eddie Kramer Collection is available for Mac and PC, priced \$800.

www.waves.com



NI (re)make Kontakt

Version 4 of Native Instruments sampler is revealed, alongside Komplete 6 at a very competitive price point!



Kontakt 4's new AET system should bring a new level of realism to sampled instruments

Native Instruments recently visited the cm offices to show us their upcoming new software releases, all of which look to be shaping up very nicely indeed. We report on Absynth 5 and Guitar Rig 4 elsewhere in News, but the headline stories are Kontakt 4 and the Komplete 6 bundle.

Kontakt 4 sees the addition of NI's Authentic Expression Technology (AET) to the popular sampler. According to NI, this means that the sampler can replicate the "dynamic tonal behaviour of original instruments in new and highly expressive ways". AET employs FFT analysis of samples and enables you to morph between the spectral characteristics of different instruments and sounds in real time.

In addition, the Kontakt Script Processor has been given a shot in the arm, offering a "whole new level of functionality through powerful Multi Scripts" and much more customisable Performance View panels.

For those seeking sounds straight out of the box, there are seven collections in the 44GB Factory Bundle: Band, Choir, Orchestral (with new solo strings from VSL), Synth, Urban Beats, Vintage (with a

"painstakingly-sampled" Mellotron) and World. The new sound browser should make samples easier to locate and manage, offering drag-and-drop assignment and support for custom attributes.

NI's new NCW system means that samples are stored in a lossless compressed format, reducing on-disc sample sizes by up to 50%, then decompressed on the fly. This causes a minimal additional CPU hit, but gives greater polyphony counts as the hard drive bottleneck is reduced.

Kontakt 4 (£321) for Mac and PC will be released in October; however, clearly we'd recommend saving up a little more for the Komplete 6 bundle, which includes Kontakt 4, Guitar Rig 4 Pro (see p10), Absynth 5 (see p15), Battery 3, FM8, Massive and Reaktor 5. This monster bundle, also out in October for Mac and PC, is an absolute steal at £424. Note that Akoustik Piano, B4 II and Pro-53 have been axed from Komplete and discontinued altogether, marking what we can only assume to be a move away from vintage instrument emulation for NI.

www.native-instruments.com

VSL's natural response

Vienna Symphonic Library release Vienna MIR

VSL have released Vienna MIR, built on the company's Multi-Impulse Response convolution technology.

The app hosts Vienna Instruments, enabling the user to position them on a virtual stage, change their orientation, volume and stereo width, and apply effects. There are five halls from the Vienna Konzerthaus, each using up to 5000 IRs, as opposed to typical convolution reverbs which only use one IR.

Vienna MIR (£795) is out now for PC only.

www.vsl.co.at



Vienna MIR enables you to position any of your Vienna Instruments in a virtual 3D space

Mixdown



Our Deputy Editor takes a peep into the future and likes what he sees

Legendary musical innovator and inventor Les Paul recently passed away, and while his name is strongly associated with the Gibson guitar of the same name (which he co-designed), he also dramatically shaped the way we record music. His many experiments with tape-based recording

"I'm not sure how well my hearing will be holding up in 70 years time - but who cares?"

systems led him to invent such studio staples as multitrack recording, overdubbing and tape delay effects, which were the precursors to the basic recording functions of any DAW.

Les Paul was also a fantastic guitarist in his own right, and continued to play weekly shows up until a few months before his death, aged 94 - what a guy! I plan to take a leaf out of Les's book and stay musically active for as long as is humanly possible. In fact, one thing that's long intrigued me about computer music is that, for as long as I can operate a computer, I should be able to realise pretty much any musical idea.

As for the kind of music technology that will be around by the time I'm hurtling towards my first century of existence, well, I can barely speculate... Oh, go on then, I'll give it a shot. First off, I'm not sure how well my hearing will be holding up in 70 years time - but who cares? By that time, not only will it be possible to beam audio straight into the brain, thus bypassing the ears, but I'd expect that our tunes will be able to mix themselves anyway.

If, by that time, I've become too infirm to play my trusty guitar, I'm sure there'll be an absolutely convincing physical-modelled virtual equivalent of this and pretty much any other instrument - you'll even be able to design your own crazy creations. Finally, it should be no big deal if I'm not even equal to the physical demands of operating a mouse and keyboard, as it's all gonna be controlled by brain waves anyway, I reckon.

If someone digs up a tattered copy of cm144 in the fantastical year 2079 (just as issue 1054 goes on sale - no doubt complete with a Mixdown column from myself on how the old days were so much better), they'll be in a position to check on the accuracy of my predictions. I do hope that my witterings don't come back to haunt me...



NI's brand new Rig

Native Instruments unveils Guitar Rig 4 Pro

> NI's semi-modular amp, cab and effects modelling system Guitar Rig has reached version 4, and what's more, it now boasts the 'Pro' suffix.

New for Guitar Rig 4 Pro are two tube amps called Hot Plex and Jump, both of which appear to be based on Marshall hardware. There are also four more effects units - bringing the total up to 48 - namely Grain Delay, Twin Delay (a stereo echo unit), Iceverb (ambience from an "icy cave" to an "igloo") and Octoverb, which features the early reflections of eight rooms. On top of this, there's a new Master Effects section.

The most intriguing new feature is the Control Room module, which is the "most powerful tool in the history of guitar studio recording", according to NI's International Director of Marketing, Pablo La Rosa. NI

headed to German session guitarist and engineering wizard Peter Weihe's studio, where he has a collection of sought-after cabs, mics and preamps installed, the mics permanently positioned to ensure phase coherency. Using convolution technology, NI captured impulse responses of Peter's setup, resulting in Control Room, with up to eight mics per cab can be mixed.

Beyond that, there are 250 new presets, a true stereo signal path, greater range and quality for time- and pitch-based effects, and a new component presets system.

Native Instruments Guitar Rig 4 Pro (£179), along with the cutdown Essential (£89) and Kontrol (£339), is out in October for Mac and PC.

www.native-instruments.com

cm Special

> Are you guilty of using your soft synth collection for presets alone? Well, with the brand-new cm Special, you can finally take complete control over your sounds.

This step-by-step guide will give you a foundation in many electronic styles. From learning the basics of synthesis, you'll soon be customising presets with expertise and designing your own patches from scratch.

The included disc is packed with software and ten exclusive video tutorials on creating the most popular, cutting-edge sounds.

cm Special 38: Make Synth Music is available in the UK from 7/10, Europe 14/10, North America 4/11 and ROW 18/11.

www.myfavouritemagazines.co.uk

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musicradar.com

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Downsampled



The ultimate bespoke MIDI controller brings Hammond's classic back to life, warts 'n' all

> Markus Berger loves Native Instruments B4 II, the software emulation of the famous Hammond B3 organ. He loves it so much, in fact, that he built a new body to contain its software soul, constructing a full-sized replica of the Hammond B3, handmade from scratch, that works as a MIDI controller.

If the real B3 had it, this B4 II controller probably has it, too. There's a meticulously crafted case made of cherrywood (which was used on some of the real B3s). There are two manuals (ie, keyboards), with the key colours matched to the original, in addition to full drawbars, a pedalboard and a bench. Getting all of this hardware working meant putting some serious custom electronics under the hood. Markus developed the main controller electronics himself, prototyping

"Getting all of this hardware working meant putting some serious custom electronics under the hood"

the work in the open-source Arduino hardware platform and adding Doepfer electronics for the manuals.

Why all the custom work? There simply isn't anything on the market that can match the classic B3's drawbars, keys and switches. The physical functionality is all matched to models built into the B4 II software, so it's a real marriage of custom hardware and software design. Of course, this prompted some organists to joke that the new creation combines all the impracticality of a real B3 with the simulated sound of the software.

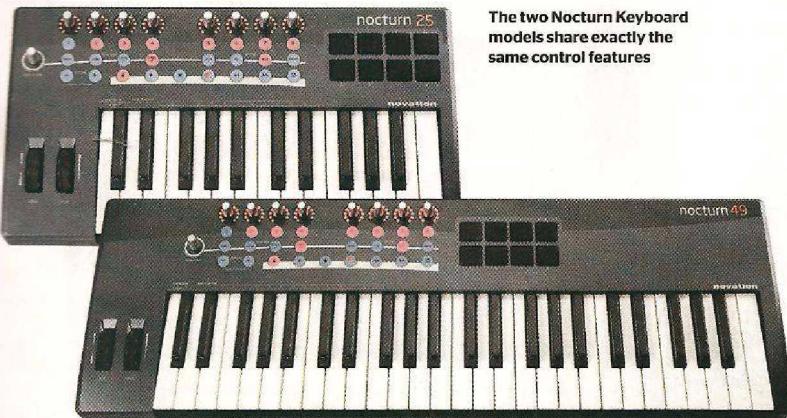
Sadly, Native Instruments recently announced the discontinuation of B4 II, evidently unaware of Markus' passion. But if you want a custom controller of your own imagining, Markus is available for hire.



CDM: Downsampled is brought to you by Create Digital Music, the must-read online blog expressing the long view on music technology trends.
www.createdigitalmusic.com

Novation get keyed up

The Nocturn range gets new Keyboards



The two Nocturn Keyboard models share exactly the same control features

> Building on the success enjoyed by their tiny Nocturn control surface and SL range of controller keyboards, Novation are releasing Nocturn Keyboards in 49- and 25-key models.

Like the current SL range, the units both use the Fatar Fast Touch keyboard mechanism, which greatly impressed us when we reviewed the 25 SL Mk II in **cm140**. The Nocturn Keyboard's keys are velocity-sensitive, with aftertouch for added expression, and pitchbend and modulation wheels are of course onboard. Both Nocturn Keyboard models also feature eight rotary encoders (with LED rings for visual feedback) and 25 back-lit buttons, as well as eight velocity-sensitive drum pads and Novation's 'Speed Dial'.

The Nocturn Keyboards both employ Novation's powerful Automap technology, which offers quick and easy mapping of plug-in parameters (hit the Learn button, wiggle an on-screen parameter, then touch the physical control you want to bind it to), triggering of QWERTY keyboard commands, and a pop-up

GUI on your computer screen that shows how the currently selected controller is mapped.

Novation's Nocturn Keyboards are fully compatible with Mac and PC, and should be available now, priced £253 for the 49-key version and £190 for 25-key model.

uk.novationmusic.com

WHAT THEY SAY "Nocturn's spacious layout has been adapted to a full control solution for DAW users, extending Novation's range of high-end controller keyboards to new levels of affordability"

WHAT WE SAY We like the look of these Nocturn Keyboards a lot - with Novation's Automap technology behind them, they should prove popular among producers looking for quick and easy DAW/plug-in control

Soniqware attack

> Soniqware have released the MT-1 Multiband Transient Processor.

This stereo multiband transient manipulation plug-in works on four separate frequency bands, with linear-phase crossover filters used to ensure that the resulting signal doesn't suffer from unwanted phasing artifacts. For each band, you can set the time and gain for the attack and release stages to make parts of the frequency spectrum punchier or softer. There's also make-up gain per band, as well as link and solo buttons.

Soniqware's MT-1 Multiband Transient Processor (PC only) is out now, priced £130.

www.soniqware.com



Fancy separating sounds into four bands for transient processing? MT-1 does just that

Trackers & Demoscene



Celebrating Sunvox's port to iPhone and mourning the departure of Psyche's boss

> The Sunvox tracker has been around for a while on a number of platforms, and its latest outing takes it to the iPhone and iPod Touch. Boasting built-in synthesisers and effects, Sunvox employs a unique combination of multiple panels and multi-touch scaling for great usability.

www.warmplace.ru/soft/sunvox/

Jaz, the main project leader of the modular computer studio Psyche, has sadly announced his departure after over eight years in command. Although Psyche development has been relatively quiet of

"**cm** will soon be making its annual pilgrimage to the UK's very own Sundown demoparty on Devon's Jurassic coast"

late, the tracker itself remains as impressive a tool as ever and still enjoys the attention of a robust community. A replacement for Jaz has yet to be announced, but watch this space.

Lastly, **cm** will soon be making its annual pilgrimage to the UK's very own Sundown demoparty on Devon's Jurassic coast. We'll be reporting back next issue with news of all things demoscene, as we scoff our seaside fish and chips.

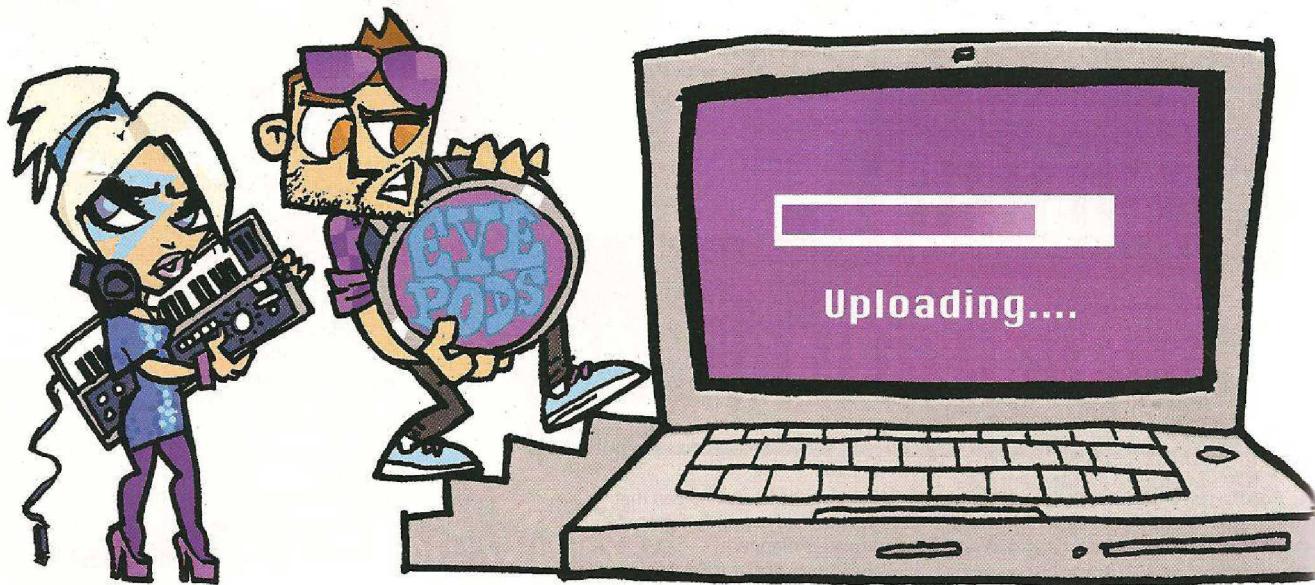
DEMO OF THE MONTH

The Golden Path by United Force & Digital Dynamite

With thousands in attendance, August's Assembly demoparty went off in style. The demo competitions yielded many excellent productions, so this month's highlight was a tough decision. *The Golden Path* is a journey through, well... who knows what, but the party snakes, disco cubes and perfectly orchestrated music had us hooked. Look on your **cm** DVD for this and other fantastic productions from Assembly 2009.



Party snakes abound in *The Golden Path*



What's the best way to put my music online?

> The contemporary music business is riddled with contradictions, and unfortunately, it's not the successful artists but the aspiring ones (that'll be the majority of us, then) who have to wrestle with some of the most frustrating issues. It's never been easier or more affordable, for example, to produce release-quality music in your bedroom, but because so many of us now have the tools required to do it, more music than ever is being created. As a consequence, the battle to find an audience has never been fiercer.

The struggles continue when you decide to put your music online. The internet is

"In such a diverse market, how on Earth do you make your material stand out?"

chock-a-block with social networking portals and other sites that allow you to upload multiple tracks or entire albums. But in such a diverse market, how on Earth do you make your material stand out? You could, of course, build a personal website in just a few hours, but actually

getting people to visit it is extremely difficult.

The democratisation of the music industry may have changed the rules, then, but when it comes to becoming a successful musician, the challenges are as big as ever.

Before you embark on a frenetic and entirely random round of promotional activities, then, you need to work out some kind of strategy. And when you're piecing this together, the first and most fundamental question you're likely to ask yourself is this: where do I put my music?

In the first instance, you'll probably see it as a straight choice between sites that feature profile pages for lots of musicians or one of your own creation, but it doesn't have to be a case of 'either or'. Andrew Dubber, Senior Lecturer in the Music Industries at the Birmingham School of Media, Birmingham City University and proprietor of the New Music Strategies blog (www.newmusicstrategies.com), concurs:

"It's important to go where the people are if you want anyone to notice you, but having your own professional website is an absolute must if you want to be taken seriously," he says. This makes perfect sense - you need to be where the action is, obviously, but don't make the mistake of thinking that a MySpace profile is any substitute for a dedicated website of your own.

Speaking of MySpace, as a musician, this is probably the first social networking site that you'll think of signing up to, as it's long been accepted that every artist and band simply has to have a presence there. However, at a time when its popularity seems to be on the wane, does MySpace still matter?

"Sadly, I think it still does, for one reason only," replies Dubber. "Often, when people hear of a band, they'll type in 'myspace.com/thatbandname'. Hopefully, if they spell your name correctly (and if you have a sensible MySpace URL), they'll find you. But that's it. That's all it's for."

MySpace or yours?

It's also worth noting that MySpace no longer automatically streams the first song on your page when someone logs onto it - the change was made in August, reportedly in order to cut down on the Rupert Murdoch-owned site's streaming costs. That being the case, visitors now have to make the effort to hit play; it's a subtle change, but one that could cost the aspiring musician quite a few listeners.

So if MySpace isn't the be-all and end-all, where else should you be putting your tunes? One musician-specific site that's been garnering a lot of attention this year is Bandcamp, and it's easy to see why. It's not a social networking site; rather, it's a platform that can be used to create an online home that looks and feels like your very own.

Feature highlights include the ability to upload one full-quality file per song and have it converted into all the compressed formats you could wish for; metadata tagging so that your music is all ready for iTunes; an embeddable music player; and an easy-to-use method of selling your music (you can set up a Radiohead-style 'pay what you like' system).

In short - and to quote the site's FAQ section -

Ins & outs

Bandcamp is designed to "hang out in the background handling all the technical issues you dread (and several you've probably never even considered)" while you sort out the music.

Head in the 'Cloud

On a slightly different tip but also much-talked-about at the moment is SoundCloud, whose stated aim is to "move music". This means that it's designed for anyone who wants a way to receive tunes (members can create a 'DropBox' on any website and others can easily fill it), a simple and flexible file sending system and - this is probably the biggie - a really excellent audio player that can be put on any website and retains comments posted in its waveform timeline. We'll be taking a closer look at SoundCloud in the next issue of **cm**, so join us next month for that.

Of course, there are many other online services that the budding online musician can use, but the likes of Bandcamp and SoundCloud feel decidedly next-gen, and the fact that they're designed to work in conjunction with the major social networking sites, instead of competing with them, makes them all the more useful.

Another site that should definitely be on your radar is TuneCore, which can perform the very desirable trick of putting your music into a variety of online music stores. Apple's iTunes is by far the most well-known, but the likes of Rhapsody, Amazon, eMusic and Napster are all covered, too. TuneCore isn't free, but the costs aren't prohibitive, and if you want to be in the places that really matter when it comes to selling music these days, it's a simple solution. The dance music-oriented site Beatport only accepts music from labels, incidentally, so you'll have to get yourself signed if you want to get into that one.

Give it away now

Even so, as an unknown, there's a strong argument for simply giving your music away. Nine Inch Nails man Trent Reznor recently wrote a lengthy post on his band's forum offering advice to any musician who's just starting out, and he argues that you should "forget thinking you are going to make any real money from record sales. Make your record cheaply (but great) and give it away. As an artist, you want as many people as possible to hear your work. Word-of-mouth is the only true marketing that matters."

At a time when even world-famous artists are offering songs and albums for free, you can't really argue with his logic (point your browser at bit.ly/OTUHr for the full post - it's well worth a read). It brings us back to our original point: although the internet has made music distribution easy, it's unlikely to make you rich. In fact, as a musician, you've got a much better chance of making money out of live performances (and possibly even merchandising) than you have of doing it through selling music.

We'll conclude with a reminder that the old record industry model is gone forever, so don't try and pretend that it hasn't. As Andrew Dubber sagely points out, "If you're trying to 'make it', then you haven't really understood what's going on." **cm**

WE ARE ALL T-PAIN
Robo-crooner T-Pain has one of the most distinctive voices in pop, but as canny computer musos know, he owes it all to Antares Auto-Tune. Now, with the I Am T-Pain app for iPhone and iPod Touch, anyone can autotune their voice, anywhere. Huzzah!

A RIGHT EARFUL...
Hip-hop heavyweight Dr Dre and neo-pop fashionista Lady GaGa have teamed up, not to create music, but to launch Lady G's very own in-ear headphones, dubbed Heartbeats. If it gets 'the kids' to ditch those bloody Apple iBuds, then we're all for it.



ITUNES 9
So iTunes 9 is here, featuring such niceties as improved sync and easy organisation of apps - and about time too! Hopefully we'll see a dedicated music-making category in the App Store before long.

MOUSEWHEELS OF STEEL
If you'd like to perpetuate the image of the digital DJ 'checking email', DJ-Tech have the product for you: a mouse that's also a DJ controller, complete with jogwheel and special mouse mat "optimised for scratch performance". Sigh...



IT'S JUST BEH-WRONG-ER
Behringer have a proud history of copying other companies' products, and now they've even applied this ethos to their new website. The barefaced cheek of the new www.behringer.com will stun you to the core.

LOGIC IS LAGGING
Snow Leopard is out and 64-bit is officially 'in' - at least that's what Apple are saying. So why is the very-recently-released Logic Pro 9 still bumbling along as a 32-bit app? We're hoping for a free update sooner rather than later...

Busting jargon



Computer music terminology explained.
This month: **64-bit OS**

The term '64-bit' is a particular source of confusion in the world of computer music because it has two very different meanings. This issue, we'll consider the kind of 64-bit that's of relevance to all computer users - we'll cover the music-specific variety next month.

When we're talking about computing in general, 64-bit refers to the CPU having registers that can store and use 64-bit values. Of particular relevance are the addressing registers, which point to locations in memory - just as an address is used to find a particular house on a street, so the address registers locate data items in memory.

With 32-bit CPUs, the address registers can point to 4,294,967,295 different memory addresses, which equates to 4GB of RAM. The implication of this is that anything above 4GB is wasted on a 32-bit CPU, and while there are tricks that can be used to overcome the 4GB limit (somewhat (some CPUs have a crafty 36-bit addressing mode), this is really only a cludge to keep 32-bit propped up. In stark contrast, a 64-bit CPU can happily address up

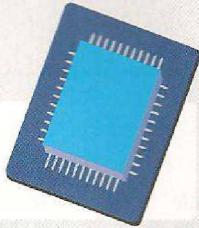
to 17.2 billion gigabytes of memory!

However, it's not just a matter of using a 64-bit CPU (most CPUs made in the last five years or so have been 64-bit capable anyway, even though you may not have realised it), as the operating system (ie, Windows, OS X, Linux) needs to be written and compiled for 64-bit, as do any drivers. You can run 32-bit software under a 64-bit OS, but until a program is properly compiled for 64-bit, you won't get the full benefits, such as being able to use more than 4GB. There are potential speed increases too, but right now, overcoming the 4GB barrier is the most compelling reason to go 64-bit.



Nearly all the system applications in Apple's new Snow Leopard OS are 64-bit

System check



Weird and wonderful goings-on in the world of computer technology

SEEING DOUBLE

While the Lenovo ThinkPad W700ds dual-screen laptop whet our appetites for mobile dual monitors with its

dinky second screen, it wasn't quite the full-on affair we'd been waiting for. Thankfully, gScreen Corp ("The Dual Screen Laptop Company") have stepped up to the plate with what can only be described as a two-headed beast of a machine. The gScreen Spacebook 2009 is touted by the company as "the first dual screen laptop with two 15.4-inch identical screens and a full-size keyboard built into one laptop unit". No price has been announced yet, but we do know that the Spacebook will be available with T9600 or P8700 Intel Core 2 Duo processors, an NVIDIA GeForce 9800 GT graphics card with 512MB VRAM, and up to 4GB DDR2 800MHz SDRAM across two SO-DIMM sockets. We can't wait to check this behemoth out, so here's hoping it really does appear before the end of the year.

www.gscreencorp.com



It's literally twice the fun!

SHOR THING

Cider-quaffing boffins at the University of Bristol have come up with a penny-sized, quantum-computing silicon chip that uses photons to run Shor's algorithm. The algorithm susses out the various sets of two numbers that can be multiplied together to achieve a given result. Traditional computers take a long time to factor large numbers in this way, but quantum computers can handle these kind of problems with comparative ease by exploiting the fact photons can exist in multiple states at the same time. The Bristol team used tiny channels called waveguides etched into the chip, essentially creating a 'circuit' for the photons to travel around, but say that to create a truly useful computer from the technology, it would need to be a million times more complex. This will take at least two decades to develop, apparently, so don't go binning your laptop just yet...

www.bristol.ac.uk

GIMME AN i5

Intel has at last officially announced its Lynnfield line of processors, which include the Core i5-750 and Core i7-870. This may be exciting news for those after a fast processor that won't break the bank, but according to Scan Computers' Peter Gardner, musicians should save up the extra cash for the i7-850 rather than the slightly cheaper i5-750. He explains: "The 8 series (850/870) have hyper-threading enabled whereas the i5 750 doesn't. For gaming and the budget-conscious, having four cores is more than fine, but for the serious audio enthusiast, it can pay to have all eight available, be they physical or virtual. The extra money doesn't seem so bad when you realise the extra processing power that's available. Also, take note that all the major sequencers will take advantage of the hyper-threading."

www.intel.com

112dB

Jules Vleugels

We track down 112dB's CEO for a chat about what inspired the company's most recent plug-ins



CN What's your background in music and programming?

JV "I started programming way back in the early '80s when the first home computers became available (I still fondly remember my number-crunching 8-bit Spectravideo), and later went on to study (and subsequently obtain a PhD in) Computer Science. My interest in music dates back at least as long: I've been playing drums in amateur and semi-pro bands for 25-plus years, and I taught myself guitar, keyboards, singing and composition along the way."

"112dB was founded in 2005 to host the vintage sampler emulation that we were working on at the time."

CN You recently released Redline Reverb - do you think the world really needs another reverb plug-in?

JV "Software reverb has come a really long way, but many users still consider plug-ins inferior to certain (admittedly costly) hardware units. Whether that's due to actual quality or simply because our ears are used to the hardware sound, I'm not sure - perhaps it doesn't even matter. As long as that discrepancy is perceived to exist, there is a demand for new and better reverb plug-ins, and I'm sure many more will follow in the search for software reverb's Holy Grail."

CN Redline Reverb is based on an algorithm that was originally implemented as a Reaktor ensemble. Was it a challenge to reimplement this in code? Do you use Reaktor to prototype ideas?

JV "Personally I usually go straight to C++ code, if only because I've collected quite an extensive code library of DSP primitives that makes it nothing like writing from scratch. My co-worker Martijn Zwartjes, on the other hand, prefers Reaktor - not that surprising since he wrote much of it - and prototypes pretty much everything in it. What we did for the transition is build code equivalents to Reaktor's building blocks,

which could then be combined in much the same way. So any Reaktor ensembles he comes up with are now pretty straightforward to make into a plug-in."

"Software reverb has come a long way, but many still consider plug-ins inferior"

CN How much work goes into making graphical interfaces?

JV "With 112dB, our main objective is and will always be great sound, but the interface is important, as it defines people's first impression of a product. And while a good-looking interface cannot make up for lousy sound, it can notch an already great DSP algorithm up to the next perceived level. Workflow on the other hand can be a deal-maker, so we put a lot of thought, user feedback, and above all, time into achieving the best we can there. Probably as much as on the actual DSP code."

CN What's next for 112dB?

JV "Redline has a number of plug-ins lined up, and the Vintage series will see an emulation of a much-sought-after vintage drum machine. Most of the work is done, but sometimes the final polishing can take an unexpected amount of time. And when we do something, we want to do it right, so all I can say is: they're done when they're done!"

NI launch Absynth 5

> Rounding out the Native Instruments Komplete 6 line-up is Absynth 5, the latest version of their weird and wonderful semi-modular synth, primarily aimed at sound designers and composers for TV and film.

New additions to Absynth 5 include the Supercomb Filter, which apparently creates "physical modelling-type sounds with intricate acoustic resonances", and the Cloud Filter, which adds granular-based spectral modulations to your sounds. Many of the filter sections now have feedback paths, too, for lending your patches a dirtier edge.

Another tool for further sonic manipulation is the brand new Aetherizer effect, which employs an algorithm to break your sounds down into tiny particles before rearranging them. Next up there's the all-new Mutator module, which enables you to choose attributes that you would like your current patch to move towards - Warm, Dark, Digital and so on - the software then analyses the sound bank for presets that roughly match your selections and morphs between them and your original patch for evolving sounds.

For those who just want to explore the



NI provide 250 new presets in the Sound Browser to help you get started with this complex synth

factory sounds or have a foundation to build upon (after all, Absynth has never been the easiest synth to program from scratch), there are 250 new presets on offer, bringing the total up to 1800.

Native Instruments Absynth 5 for Mac and PC is out in October. The exact price wasn't confirmed at the time of writing, but we were told that it will be around £150.

www.native-instruments.com

Game overture



Music4Games recently bagged an in-depth interview with composers Nick Arundel and Ron Fish on the subject of their score for the supremely popular video game *Batman: Arkham Asylum*...

"As the film music is so loved," says Arundel, "it would have been unwise to completely ignore all of the emotional links the fans have with these pieces. So, after a period of analysis involving both the Elfman and Zimmer/Howard themes, I identified a set of both harmonic and melodic principles that were common to each."

From there, Arundel and Fish took these inspirations and melded them with their own dark and mysterious orchestral techniques to create a suitably menacing and quirky score, reflecting the game's setting perfectly. Be sure to read the full interview at www.music4games.net.

And now for something completely different - surely you've always wanted to hear Miles Davis rendered in a glorious 8-bit chiptune style, right? Well, look no further: kindofloop.com.

Game overture is brought to you by www.music4games.net, the ultimate games soundtrack resource

Soundware news

> Zero-G have released Brazil Chillout (£60), featuring 32 construction kits and a selection of rhythmical/musical loops with a chilled-out bossa nova vibe. Ultimate Sound Bank have gone down the hip-hop and RnB route with the EkoLoops series title, Hip Hop Planet (£115), which contains 87 construction kits by producer Eric K-Roz. More hip-hop sounds are provided by Teknits' Urban Inspiration (£40), which has over 2.5GB of loops and samples.

www.timespace.com

There are two new releases from Global Underground, kicking off their GU Sample Series: Anil Chawla & Dale Anderson (£20) and Jim Rivers (£20), both of which provide house hits and loops. The house vibe continues with Push Button Bang's Dark House (£25), containing nearly 1GB of loops, FX and one-shots. From Loopmasters comes Broken Beat Drum Library (£20), featuring over 250MB of broken beat, nu-jazz and lounge samples. Abstraction 04: Found Sound Urban Intelligence (£25) from Galbanum has over 1GB of abstract hip-hop, downbeat and glitch-style rhythmical loops. For minimal and tech varieties of house, Cluster Sound offer Minimal Impact (£25), containing over 800MB of drum loops, basslines and hits, plus 15 multisampled synths.

www.loopmasters.com

News in brief

IK STEALTH CORRECTION

cm142's review of the IK Multimedia Stealth Pedal featured a few errors. First off, IK accidentally sent us the wrong prices - the Stealth Pedal is cheaper than we specified, being £346 for the Deluxe bundle and £199 for the Standard version. And we bungled the price of the StompIO; it's £644, not the £920 that we listed. And finally, some news: 64-bit Windows drivers are now available for the Stealth Pedal.



EVOLVING SOUNDS

Fans of Heavyocity's excellent Evolve Kontakt sample library should check out Evolve Mutations for NI's free Kontakt Player and the full-on Kontakt. It comprises all-new material and is said to complement the original library with an even edgier sound. As with the original Evolve, all of the content was created by pro TV, film and video game composers, and you get 2GB of material divided into logical categories. Evolve Mutations is out now, priced £99.

www.heavyocity.com

cm141 COMPETITION WINNERS

In cm141, we had ten prize bundles up for grabs, each comprising 2CAudio's superb Aether reverb and a Galbanum sample pack. The winners are Grimsby's Paul Nicholls, Steve Foote of Southampton, Sajid Asfar and Matt Courtney of Birmingham, Dave Horne of Bristol, Ian Short of Southampton, Camelot's James Barnet, Neil Austin of Wisbech, Zubin Kavarana of Manchester, and Hayley Biggadyke of Woodhall Spa.

cm142 COMPETITION WINNERS

cm142's massive Novation/Ableton/KRK competition was by far our most popular ever, which isn't surprising considering that we were giving one lucky reader the chance to win £2050 worth of great hardware and software. And the lucky, lucky winner of this stupendous haul of gear is... Andrew Chomiw of Swindon!

Now turn to p87 for your chance to win one of three FabFilter Total Bundles!



The Mixer view of Quixonic's Quixpin DJ app, which enables you to level and EQ two separate tracks



bleep!Box (below) generates up to ten analogue-style drum and synth parts on the fly - not bad!



FingerBeat (right) offers many ways to play, program or record loops and patterns, before mixing them

Trigger 'appy

A round-up of the latest music-making apps for iPhone and iPod Touch

Quixonic's new Quixpin DJ app should delight those looking for some turntable action on their iPhone or iPod Touch.

There are three main screens - one for each deck and one for the mixer - navigated via buttons in the bottom corners. The app enables you to cue up one track, with control over the speed/pitch, while another plays on the other side. The mixer features a crossfader; high, mid and low EQs; and killswitches. To get your tunes into the app, you convert them to mono MP2 on a computer, then upload to the device via FTP.

Quixonic's Quixpin DJ (£2.99) is out now.

www.quixonic.com

Combining classic drum machine emulation and analogue synthesis, bleep!Box should appeal to those after retro sounds.

The app generates up to ten drum/synth voices in real time (no samples are used), with features including eight different waveforms, sync, ring mod, FM and phase modulation. There are step-sequencing, recording and live performance modes; delay and distortion effects; and users can save their patches. With over 50 tweakable parameters and automation, bleep!Box should certainly be versatile.

bleep!Box is out now, priced £5.99.

www.bleepboxapp.com

FingerBeat is for those who want to "sample/create/mix/sing", according to its makers, The Elionze Group.

The app contains a step sequencer, keyboard and pattern editor for programming either the onboard sounds or your own - you can record samples straight to the eight drum pads via an iPhone or iPod Touch 2G mic. There are 16 factory drum kits included to start you off, and eight user patches. The multitouch mixer offers volume, balance and mute functions.

Elionze Group's FingerBeat is available now from the App Store, priced £2.39.

www.fingerbeat.com

Focusrite's DJ gem

Lifting the lid on the Saffire 6 USB audio interface

Having been a major player in the mic preamp game for some 25 years, Focusrite certainly know a thing or two about getting pristine audio signals into your computer. Their brand-new Saffire 6 USB includes two "award-winning" preamps and pro-quality A/D converters, which the company say makes the unit "the best-sounding interface in its class".

The Saffire 6 USB features two

mic/line/instrument inputs with separate gain controls, plus two balanced TRS outs, four phono outs and a high-level headphone socket, which Focusrite reckon is just the thing for any digital DJs in the market for a new interface. There's a handy A/B source switch for headphone monitoring of the two pairs of phono outs, too, which Focusrite hope will "provide all that's required for laptop DJ-style cueing in a club environment". Thrown in for good measure is the Focusrite Plug-in Suite and some other software goodies.

Also new from Focusrite is the OctoPre MK II, which offers eight high-quality mic preamps in a 1U rack unit, with ADAT output - this should make it a viable solution for bolting on more channels to an existing audio interface with ADAT inputs.

Focusrite's Saffire 6 USB for Mac and PC should be available now, priced £161, while the OctoPre MK II weighs in at £380.

Focusrite's Saffire 6 USB is aimed at digital DJs and features a high-level headphone jack for monitoring

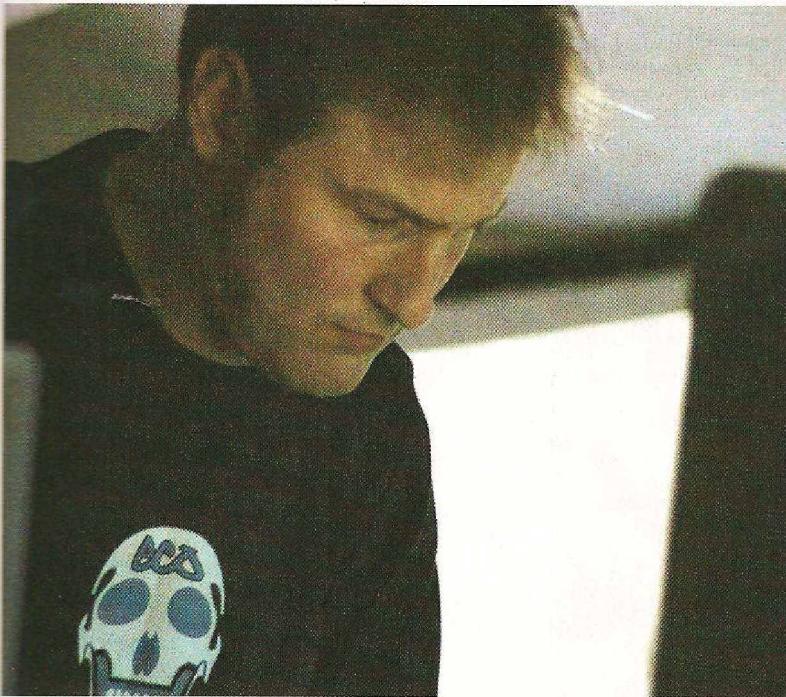
Apple Keynote

With over 30 million iPhones sold in two years, Apple were in high spirits for their September 9 Keynote address, bolstered by the return of CEO Steve Jobs to the stage after his time off for illness.

The company announced iPod Touch price drops: the 8GB version is now £149, the 32GB is £249 and the all-new 64GB model is £299. The 32GB and 64GB models are also now allegedly 50% faster than the 2G model, and support OpenGL ES 2.0, equalling the iPhone 3GS - good news for music-making apps!

The other big news was the launch of iTunes 9, which has been redesigned, as has the iTunes Store. And in what can only be viewed as an about-face, given Apple's previous defence of single-track downloading against 'album-only' bands like Radiohead, we now have iTunes LPs, including videos, liner notes, lyrics and other content. Other major features of v9 are Home Sharing of your library with up to five other people, and the long-awaited ability to manage iPhone apps in iTunes.

www.apple.com



Drive time

Dialog>

The down-tempo electronic producer also known as DJ Andy Smith tells us about his favourite software

ABLETON LIVE 8

"I use Ableton Live with Faderfox controllers and it's totally reduced the amount of hardware I need for gigs. It's great for mixing, performing and making tracks - I simply don't know of any other software that's as versatile as this... I can't really say enough good things about it."

STEINBERG CUBASE 4

"I've used Cubase since the Atari days and, although I think Ableton's more flexible, I reckon Cubase has the edge for audio editing. I haven't upgraded to v5 yet, but it looks very interesting. The new LoopMash and VariAudio functions look especially exciting. Doing the album took all my time, but I'll upgrade in the next few months."

THE INTERRUPTOR ECHOMANIA AND BIONIC DELAY

"These two units are great freeware dub delays from the Interruptor site in Switzerland (www.interruptor.ch). The Echomania has a really dirty, dubby sound and it's fantastic considering that it's a freeware bit of kit... it must be a real labour of love for the creator! I like using these along with the excellent FabFilter Timeless2 or Ohm Force OhmBoyz, if I really want to make it crazy."

UAD PLUG-INS

"I use this plug-in collection for things like precision EQ - there's the Cambridge plug-in that's great, and if you want an even nicer one, you've always got the Pultec units and even the 1176 and Fairchild compressors, which are absolutely fantastic on drum tracks. There's even the Roland Classic FX bundle that's great for dub delays and brilliant chorus for strings."

"Echomania has a really dirty, dubby sound and it's fantastic considering that it's freeware"

TRITONE DIGITAL COLORTONE-PRO AND VALVETONE '62

"I use the ValveTone '62 on the drums, as it gives a nice, subtle crunch to help them cut through the mix. I use the ColorTone-Pro to just warm things up. I know that the purists say that there's a big difference between hardware and software, but I think you have to be pretty picky to tell them apart. It comes down to that old chestnut of being the track that counts at the end of the day."

Dialog>'s new LP, Run Silent, Run Deep, is out now on Lo-Tek Records
www.dialogmusic.com

COMPUTER
MUSIC

10

years
back

We delve into the archive and dust off Computer Music's 14th issue

> It was soundcard central back in Winter 1999, with cm featuring a round-up of said devices and a tutorial entitled *How do I fit a soundcard?*. That clearly wasn't enough, though, so we also ran a feature explaining *How to get two soundcards working in one PC*. Fancy that! Ten years on and soundcards are much less common, with USB and FireWire audio interfaces being prevalent.

The cm CD featured Cakewalk Express 6, which was described as "the best, most feature-laden piece of software ever

"Neither company saw how much of an industry standard ReWire would become"

included on our coverdisc" due to "not only a host of MIDI options, but also two audio tracks". Thanks to a happy accident, readers actually ended up with Cakewalk Express 6 Gold, featuring twice as many audio tracks!

Elsewhere, there was a guide to ReWire, where readers learned how to sync up Cubase and ReBirth using Steinberg and Propellerhead's new technology - surely neither company could foresee quite how much of an industry standard it would become.

The winter of 1999 also witnessed the launch of our now bi-monthly *Computer Music Specials*, offering focused tutorials, buying guides and advice on a range of cm-related goodness. Turn to p10 for details of the next one!



cm's Winter 1999 issue led with a rundown of the best hardware sound modules and soundcards

Kontakt Player

Discover the power of Native Instruments' sampler software, with this fantastic freebie, containing 450MB+ of factory content



Developer Native Instruments
Format PC VST/RTAS/standalone,
 Mac AU/RTAS/VST/standalone
Web www.native-instruments.com

While NI's Kontakt Player doesn't enable you to use your own WAV or REX files, it comes with a large patch library that makes it essential for the bargain-loving computer musician.

The package comes in two parts: Kontakt Player itself, which also includes a demo of the fully-featured Kontakt 3.5, and the Kontakt Factory Selection patch library. You can find both in the **Software** folder on the **cm** DVD, although to activate the Factory Selection soundbank, you need a free code from NI's site.

We asked Sascha Kubiak, director of NI's Producer Division, why the company have released a free version of the software?

"We want to enable everyone to experience the possibilities of Kontakt, and to use Kontakt-based instruments without the full version. For users of older libraries based on Impakt, Kompakt and previous generations of the Kontakt Player, the new version is a unified, future-proof platform for all Kontakt content."

What about a user's own patches? Will they

be compatible with the new player?

"Kontakt Player loads all Kontakt-based libraries from NI, as well as Kontakt Player-based material from other manufacturers. Plain Kontakt patches or non-licensed sample libraries can't be loaded into Kontakt Player, because that would conflict both with the role of the full Kontakt version and with the licensing model that we offer to third-party designers."

As you'd expect, there will be commercial expansions for the instrument, where you can get more sounds in exchange for cold, hard cash. Currently Heavyocity's Evolve Mutations, Scarbee's Pre-Bass, and NI's own Maschine Drum Selection. More packs will be released on a monthly basis, and Sascha confirms that there will be more free soundpacks. So, Sascha, do you have any tips for Kontakt Player users?

"The Kontakt Player also has a full mixer with inserts and aux sends for effects and dynamic processors. Each channel can have up to four simultaneous effects, which can also be fully edited. So there's a lot to experiment with!"

Do NI have plans for more free software?

"Very likely... but we have to keep our exact plans a secret for now..."

Oh, Sascha, you tease!

Chime time

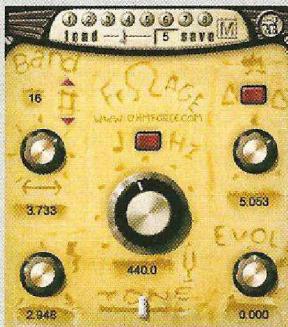
You can't beat the pleasing tinkle of chimes playing in the breeze, and now thanks to QuikQuak, you can play with a virtual set inside your Windows VST host. BarChimes is a 36-bar chimes set with modelled gravity, collision and audio. The white MIDI notes from C3 to C8 sweep up the chimes, and the curiously satisfying 3D interface provides hours of entertainment on its own.
www.quikquak.com

Anubis-ness

B. Serrano is back again with another of his funky freeware PC VST synthesizers. The Egyptian-themed Anubis is a 16-voice polyphonic synth with two oscillators, sync, cross-modulation, spreadable filter, as well as delay, chorus and tremolo effects. The instrument also features a modulation matrix that enables each source to modulate every destination by a definable amount.
bserrano.free.fr

Echo location

Togu Audio Line must be one of the most hard-working outfits on the freeware scene ever, judging by the sheer volume of top-quality effects they regularly churn out - and they've only gone and released another great plug-in. The open source, algorithmic TAL-Reverb hasn't reached version 1.0 yet, but you can download the 0.99 PC VST and AU/VST Mac versions from the Togu Audio Line website right now.
kunz.corrupt.ch



Freeware Classic Frohmage

Developer OhmForce
Format PC VST/RTAS,
 Mac AU/RTAS/VST
Web www.ohmforce.com

Here at **cm**, we often wish we could filter out a lot of things, including such inconveniences as death and taxes. These are, of course, fanciful dreams, but with Ohm Force's Frohmage, we can at least get rid of unwanted frequencies and create all kinds of tasty filter effects to boot.

Ohm Force have created some superb commercial plug-ins, and this freebie is certainly up to their high standards. While it's straightforward, the wacky French funsters have added a little of their own Gallic quirkiness with a cheese-inspired interface. The controls aren't exactly clearly labelled

"There's also a distortion stage for dirtying up your cheesy emissions"

with cryptic symbols offering no real explanation of their functionality. Once you've played with the cheesy knobs for a short amount of time, though, you'll feel at home, as the plug-in's operation is rather simple.

At its core, it's a resonant low-pass filter, which can be set to filter by frequency or musical note - a nice touch. Up to 15 additional bands can be activated, all harmonically distributed for extra creaminess, and each band has a delay stage for creating phase effects. There's also a distortion stage with two routing modes for dirtying up your cheesy emissions, should you so wish.

What's more, while Frohmage is clearly one of the most sophisticated filter effects that can currently be download for free, you can also get a taste of Ohm Force filter action by checking out the company's OhMyGod! Filter in the **CM Studio** folder on your **cm** DVD. Enjoy!



ON THE DVD

TUTORIAL FILES

Find all the audio, MIDI, and Logic Project files, plus the stems for our remix competition, in the Tutorial Files folder

THE ESSENTIAL GUIDE 2009 HOUSE

Walkthroughs, tips and production tricks abound in **cm's** comprehensive guide to making cutting-edge house tracks!

> **It's hard to pin down the exact moment at which house music was born. Was it when the term was coined? Was it when the first 'house' records were released? Or was it when DJs on Chicago's club scene first started adding electronic kick drums to their favourite tracks and playing them off tapes at their residencies?**

One thing we can be sure of is that house has been fuelling dancefloors across the world for around 25 years now. It might have gained a greater foothold in the public consciousness in some countries than others, but very few areas of the developed world have been left completely untouched, and its techniques have fuelled countless other genres thanks to the cross-pollination of sounds and methodology.

It hasn't been all one-way traffic, though: over the years, house music has adopted many influences, taking in everything from rock and pop to hip-hop and even classical. This has resulted in countless sub-genres springing up during the last quarter of a century, including trance, disco-house, hip-house, deep-house, vocal-house, garage and many, many others.

What's more, these sub-genres have taken on a life of their own and spawned their own offspring, meaning the definition of 'house' has become confused to the point where the word is often used as a generalisation, rather than an accurate description. Recently, though, two

important things have started to happen. First, more and more records are again coming out under the classification of house. And second, more and more DJs are embracing the broad-ranging approach to house that characterised it at the start. No longer is it a hindrance for a house DJ to play a wide range of styles, or viewed as displaying a lack of commitment to any one scene.

As house music has given way to rock as the pop-music norm in many countries and slipped slightly back underground, house producers have realised the need to go back to basics – and it's paying off, as they take what they've learned from other specialist house genres and bring it to bear on pure house music.

With all this in mind, over the next ten pages we're going to look at the core techniques and features behind today's house music production ethos, any or all of which might be involved in a given track. To do this, we're going to work through a driving house track, incorporating influences from tech-house, progressive house, trance and good old-fashioned 'house'. Rather than simply go over each part in sequence, though, we're going to break the genre down into some of its key elements and analyse them individually. Then, with all that done, we'll give you the opportunity to remix our track, putting what you've learned into practice, and potentially scoring yourself a commercial release!

DJ and producer Frankie Knuckles played a pivotal role in developing early house in Chicago, and later as a remixer

A brief history of house

One of the best ways to understand a genre as vast and influential (and influenced) as house, is to go right back to the start.

Original house, in the mid-80s, was in many ways a logical progression from disco. It used the standard disco dance beat, but in place of real musicians it relied increasingly on electronic instruments, although still with disco's percussion and swing. It's impossible to overstate the significance of the legendary DJs of the late 70s and early 80s, many of whom were subsequently lost to drugs and AIDS. Names such as Larry Levan and Ron Hardy belong firmly in any complete history of house.

The term 'house' itself is generally accepted to derive from the Mecca of house music, Chicago's Warehouse club. However, some DJs from the early days have put forward different theories, such as the name referring to the place where most of the music was made - people's homes - or being a description of the specific and unique style of music played in a given club, just as a venue might have a 'house' band.

Whatever the origin of the name, this form of music quickly took hold in Chicago, before spreading to New York, New Jersey and Detroit (a city that would soon give birth to the first cousin of house, techno). From there, it spread to Europe and the UK, where it quickly captured the imagination nationwide in a way that was never likely to happen in America.

In America, house was initially largely a home-made brand of gay club music, known only to those on those scene. In the UK, on the other hand, the much shorter distances involved, the more universal music scene and the nationally-focused media all combined to enable house and rave culture to gain a foothold in the UK's consciousness. And even as raves became a cause célèbre for the tabloids, house and rave music in all its forms unleashed a wave of chart and popular music culture domination that would last nearly a full decade. Later, the same would be true of techno and trance.

Well over 20 years have now passed since house was born, and by this point there's so much cross-pollination between house, techno and trance that it almost makes no sense to draw firm lines between them any more. Whether or not they're different sides of the same coin, two halves of one split coin or just two very similar coins from the same mint, they're all so inexorably linked that you can't understand the history of one properly without taking a look at the others.

In that time, sub-genres have come, gone and come again, DJs have become superstars, and the music industry as we know it has found itself teetering on the precipice. But through all of that, house music, in its various forms, has continued to adapt - until now, when it's as entrenched as rock and roll in the history of modern music. Love it or hate it, just as rock music never went away, even at the height of rave culture, house music is quite simply not something that can be put back in the box. But considering the rich influences it's brought, the contribution it's made to global musical and social culture, and the all-embracing nature it encompasses, why would we ever want to?

Seminal kit

House producers have always been a highly resourceful bunch, many of the earlier ones making do without even a sampler, so it's hard to cite one essential piece of equipment. Undoubtedly, though, two of the most influential instruments in house were Roland's TR-909 Rhythm Composer drum machine and TB-303 Bass Line synth.

The former was used extensively in all manner of electronic pop music in the 80s, but would for many years also stand proud as the defining house and techno percussion source. The TB-303, on the other hand, was initially a flop, designed as it was to form a pair with the now fondly remembered TR-606 drum machine. It wasn't long, though, before its unique sound gave birth to acid house. Legends abound of some people utilising that extraordinary resonant shriek prior to this time, but Phuture's *Acid Trax* (1986) is

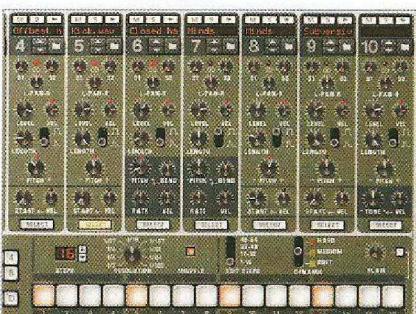
Roland's TB-303 Bass Line synth became the signature sound of acid house

widely recognised as the record that first thrust that particular sub-genre into the wider consciousness.

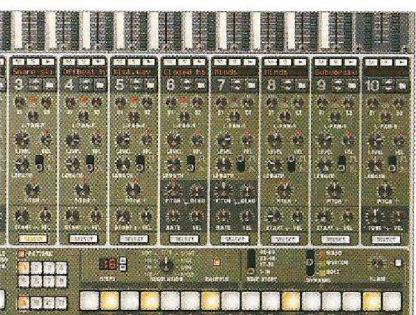
One other popular unit amongst early producers was also a Roland synth, namely the SH-101. Although it doesn't have quite as distinctive a sound as the 303, its reasonable price, great sound and extremely easy-to-program interface made it ideal for house producers on a budget.

If you want access to any of these classic sounds, there are no shortage of plug-in instruments available to emulate them. Head over to www.kvraudio.com and get searching!

> Step by step Making a house beat



1 > We're going to kick off by producing a basic house rhythm in Reason 4, using Redrum's step-sequencer. However, if you don't have Reason, any sampler in any DAW will perform the same job adequately well. Start by loading the **Beat This** samples on the DVD into each slot.



3 > Next comes another house staple - the snare, clap or sidestick on the second and fourth beats. This is by no means essential, but it's long been a characteristic feature of house rhythms, so let's get ours in there now. Follow that with another classic - the offbeat hi-hat, placed halfway between each kick drum. Now we have a solid foundation upon which to build our beat.



5 > Next, we add extra interest with the closed hi-hat and import the **Conga loop** into a Dr. Rex player, chopping off the intro portion, so that it fills in the gap at the end of the loop. Finally, we use the **Shuffle** control in Reason to add a little swing to our programmed drums, leaving the congas at their original setting, so that our groove doesn't feel too rigid.

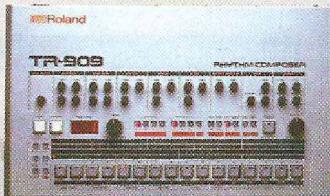
2 > Many established DJs and producers in house will wax lyrical about how house music need not have a 4/4 rhythm, but for our purposes, let's just say that 99.9999% of house tracks do, and so should yours... probably. Set the tempo to **125bpm** and place a kick drum on every beat, as shown.

4 > Here comes the fun part - because house music is slower than, say, rock music, there's plenty of room between the kicks to add personality. We start by placing the percussive tap snare in a few choice spots to add a bit of 'skip' to proceedings. This can be a fast, repetitive rhythm, or a sparse effect, depending on the vibe you're after.

POWER TIP

> Beat this

One of the key considerations in getting your drums right is spending the time tuning them to sit well with the other elements of your track. Some percussive sounds have a distinct musical tone and need to be tuned to fit their surroundings, while others just take on a different character when their samples are tuned - a technique that's been used extensively in house for years. As well as that, it's also important to shape the envelopes, and in particular the lengths of the samples. For the purposes of our track, we shorten the hi-hats and claps to make them sharper and punchier.



Roland's TR-909 drum machine is the foundation on which house was built

Can I kick it?

While there's no such thing as a standard 'house drum sound', a few things have come to characterise house percussion over the years.

First and foremost is the Roland TR-909 drum machine, which was the percussive sound source for countless hundreds of earlier house releases. Although it's no longer the one-stop rhythm-shop for house percussion that it once was, it's still the source of a number of great sounds, such as the classic open and closed hi-hats, that cutting handclap, immense high, mid and low toms and sharp, distinctive white-noise-enhanced snare. We'd steer clear of the 909 kick these days, though, as it simply doesn't cut the mustard when placed against modern equivalents.

One of the other key aspects of house is its openness to bringing real drum sounds into the mix. So for a true house vibe, you should also consider real drum sounds and loops, whether they're chopped up breakbeats, ethnic loops or just real drum and percussion hits.

Another important thing about house is that it generally sounds more sparse than most other modern styles. The beats shouldn't be drowning in a sea of reverb all the way through, or be hidden behind the music - your rhythm track needs to be the driving force, so make absolutely sure that each sound has room to breathe around the central groove. And resist the temptation to overload things - if you mute a drum hit and you can't tell it's gone, keep it muted, otherwise the sounds will eventually pile up and create an extremely clogged mix.

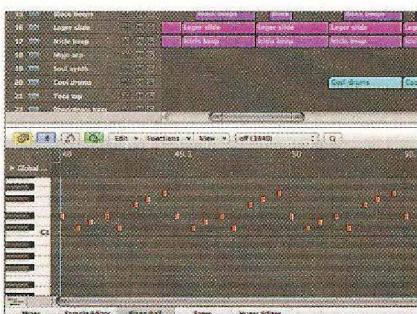
The golden rule is simple: there are no rules as to the actual percussion sounds used, as long your kick is solid, your groove is jacking' and your track fits nicely alongside a commercial house release on a good sound system.

> Step by step

Pacey percussion



1 > One of the surest ways to add pace to a track is with the use of a quick sound, like a short, tapping hi-hat. In our track, the **Toca** loop has been sliced and imported into a sampler. Then, all of the notes have been shortened and rearranged so that there's one sound on each 16th-note, creating a fast pattern.



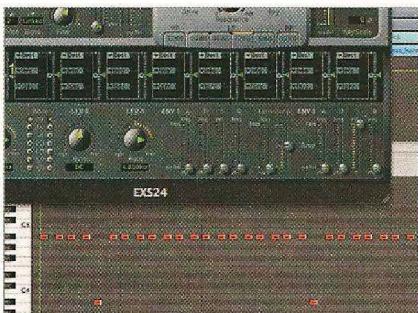
2 > Next, the notes are rearranged so as to only trigger the solo hi-hat sounds, rather than those with kicks on them, too, which could create phasing or timing issues with our existing kicks. Note that lots of different notes, and therefore samples, are used, rather than just one, as simply repeating the same sound would seem mechanical and uninteresting.



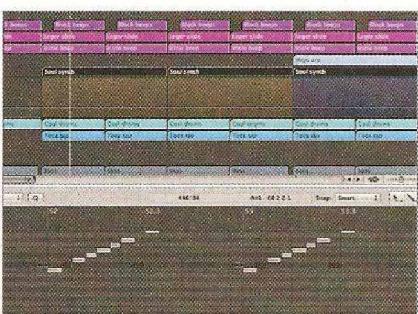
3 > Whenever you use a very fast, repeating sound in a track, it's important to make sure it doesn't feature too much bass, as that will swamp the mix. As this part comprises sampled hi-hat sounds, there isn't much bass anyway, so we just apply a little treble boost to give it more sheen, then add some sidechain ducking to make it less rigidly 'electronic'.

> Step by step

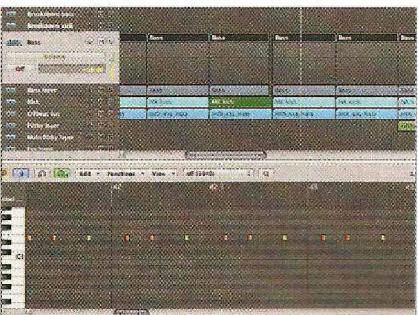
Speedy stabs



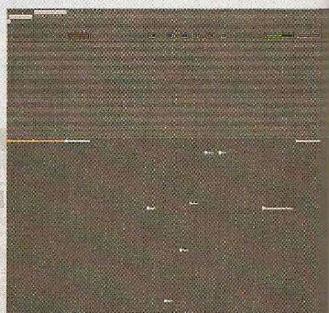
1 > They aren't always appropriate, and definitely bring a very tech-tinted vibe to proceedings, but you can add real pace to a track by using a synth stab in place of a fast hi-hat or percussive strike. Try this now by loading our **Great Digital Pong** sound into a sampler and triggering it with the **Toca Tap** pattern. We've also added an extra note an octave down, which stops it becoming overly repetitive.



2 > Another element adding pace to our track is the **Soul Synth** part. This generates the sensation of speed in a different way, however, depending on how it's placed. Using the Soul Synth sound, playing alongside a straight 4/4 kick drum, place one note on the second 16th-note of the bar, and another on the last 16th-note. You'll hear that both of these generate a huge amount of perceived pace.



3 > Using the **Wuthering Bass** sound and applying the same approach as we did with the **Soul Synth**, place a couple of bass notes between the first two beats of the bar. Now, if you repeat this between beats 2 and 3, the result is a manic techno-style rhythm, but by just placing one on the offbeat between beats 2 and 3 instead, we get a good balance between pace and funk.



The rising-velocity roll in our Soul Synth part makes for a great 'announcement' of the next eight-bar section

Pace maker

The techniques we've looked at so far are great for generating pace and can be applied to all manner of different types of sound, but they're not always appropriate, or even necessary. Sometimes all that's needed to generate energy is the right groove. The bassline that we looked at is a perfect example of this. While repeating the first skipping part of the pattern or the second offbeat will sound very insistent and driving, neither generates the sense of being pushed towards something that mixing the two over every two beats generates.

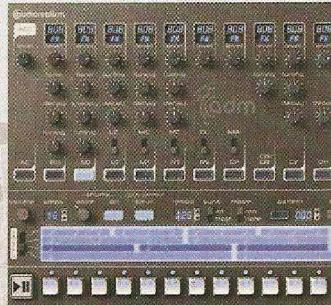
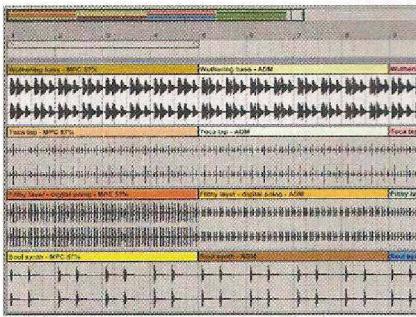
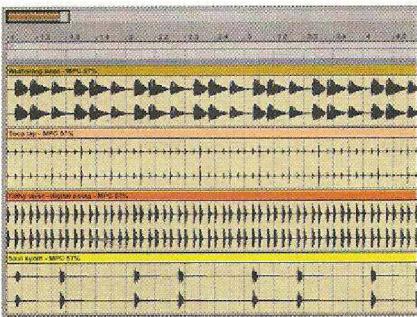
It's all very subtle, but if you use patterns that evoke a sense of anticipation and expectation, it can make a track seem even pacier than using fast percussion, and without actually adding any fast elements that can make everything sound too tough or tech-tinted. Incidentally, this is why we're looking at groove and pace on the same pages - the two are inexorably linked.

For example, another subtle energy-giving trick is the fast roll in the Soul Synth part at the end of every eight bars. To create this kind of effect, place some additional notes in between the 16ths and apply a velocity curve to make them roll into, rather than jab through, the mix. This simple effect pushes the whole track on to the next eight bars - essentially a larger scale version of putting a small percussive sound just one 16th-note before or after a kick.

Finally, there's the standard channel delay/pre-delay trick. By pulling some sounds forwards a little and pushing others back, you can help your grooves gel together better, and generate pace (pre-delay, usually) or push certain elements back a little (delay), enabling another element to shine through, which can, in itself, generate a great deal of pace.

> Step by step

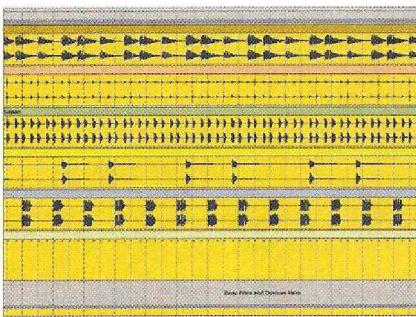
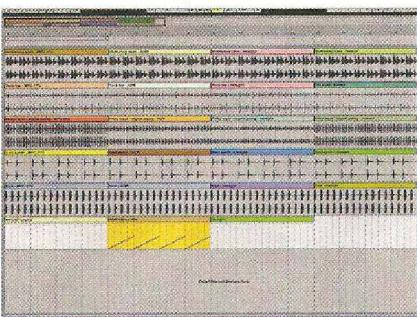
Generating groove



Lifting the grooves from your drum machine plug-ins can pay dividends

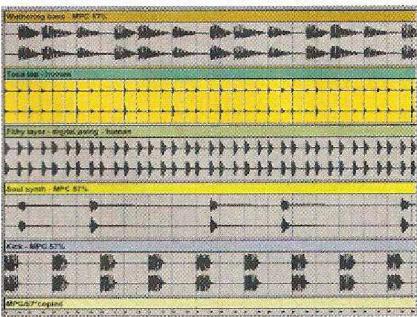
1 > We often talk about different types of groove quantise, so let's take a look at exactly what some of them actually do to a groove, purely as an informative exercise, rather than as part of our track-building process. Go to the folder on the DVD called **Groove Examples**, and load the first set of ReCycle files into your sequencer. This represents the 57% MPC swing used in the track.

2 > Next load up the file called **ADM**, which we've created using an extreme swing setting from Audio Realism's ADM drum machine. This is modelled on the very heavy swing patterns from the vintage TR series Roland drum machines. Finally, load **Straight**, which speaks for itself, then **Humanised**, which has some random timing variations added.



3 > Place the first group of parts together vertically in your DAW and loop them over four or eight bars. Then place each of the other groups immediately after the previous one and let it play through, noticing how each one changes the vibe and pace of the track. Now load up the corresponding MIDI file for each groove style and line them all up on a MIDI track underneath.

4 > Let the parts play through again now, but have a look at the placements of the MIDI notes so that you can begin to get a sense for exactly what they're doing to the groove. Then try mixing and matching some of the different grooves – use, say, the straight groove on the **Toca Tap** sound and the humanised one on **Filthy Layer**. You can also experiment with delay/pre-delay on each channel.



5 > You'll immediately appreciate that when all the parts are quantised the same, you get a much tighter groove (or lack thereof), and that, with heavy, sharp sounds, *not* quantising the parts can create clashes. But in addition, you'll also notice that humanising some lighter parts can inject a more natural and realistic groove, particularly with things like bongos and congas.

POWER TIP

> New groove

One of the best ways to get the most out of differing grooves involves good old-fashioned hands-on fixin'. Most grooves won't be playing constantly, so you needn't always use matching templates, as on those occasions when notes do clash, you can simply nudge one of them to match the other. If you find you've come up with a really cool hybrid groove, then (assuming your sequencer enables you to) create a fresh groove template from it and add it to your library for future use.

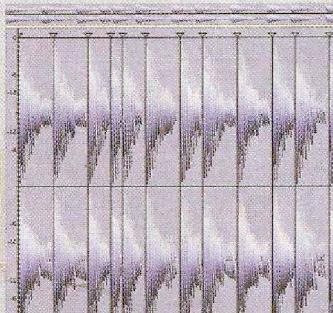
Groove box

We've already established the importance of groove, but which groove quantise settings should we use? And on what? Well, since most modern sequencers offer some form of groove mapping and the ability to slice loops, it's never been easier to collect unique groove templates, and the best places to pilfer these from are other tracks and classic bits of kit.

With a drum machine, or even a drum machine plug-in, it couldn't be easier. Simply program a pattern on 16th-notes (usually the finest resolution available on electronic swing algorithms), using a short, sharp sound with near-instant attack and a very fast release time to create accurate slices. Next, apply the desired swing setting, render the resulting audio, slice it up and create a groove map using whatever system your sequencer offers. It's also worth gathering grooves from various percentage settings, as what works on one kind of track might not work on another.

Extracting grooves from your favourite house tracks, however, can prove a little trickier, as you might not actually have a sound on each 16th-note to work with. In this case, you can just extrapolate. With electronic music, the parts will usually use a repeating groove pattern, even within one bar, so you can simply copy the note events from another part of the bar over to fill in the gaps. If you are extracting grooves from other people's tracks, make sure they aren't using the same grooves as you anyway, as a lot of house music today is made with the same groove templates.

Lastly, don't forget to use humanised grooves on elements that would normally be played live. A good place to find humanised grooves is conga loops or other fast percussive parts... or you could just use your DAW's humanise or randomise function, if it has one. Just remember not to over do it!



ReCycle not only slices up your loops but also enables the muting of individual slices

Mind the gaps

To get a good idea of the kind of things that can be achieved by manipulating sampled loops and riffs, take some time to go through the original audio files supplied in the remix parts on the DVD and try to pick them out in the complete track. Some will be much more recognisable than others, but just about all of them have been tweaked and re-sequenced.

Of course, not all of the musical parts in house tracks are taken from samples, though. The broader house genre has long incorporated everything you might find in pop, soul and disco tracks, such as synths and all manner of real instruments.

As with the percussive elements, house's musical and melodic parts don't lend themselves well to a rock-style, wall-of-sound treatment. Funk music is a far better blueprint, as it relies on the classic maxim, 'It's not what you put in, it's what you leave out'. This essentially means that each part has its own space in the mix, each one leaving gaps for the others, to generate funk and groove.

If this doesn't come naturally at first, a great way to adjust is to simply go through your riffs, muting notes at random. You'll very quickly get a sense for the type of gaps that work to generate certain types of grooves. And as you do this, repeat sections that you like, while removing, moving or replacing parts that you aren't so keen on.

This is also a useful remixing technique. With our featured track, for example, try chopping up the musical loops using ReCycle or your DAW's beat slicing features, then apply the technique we've just described, with a view to making the parts all your own.

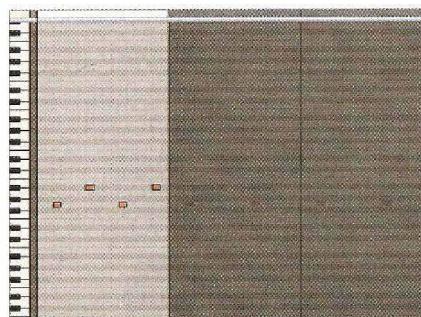
> Step by step The funky bass and sub



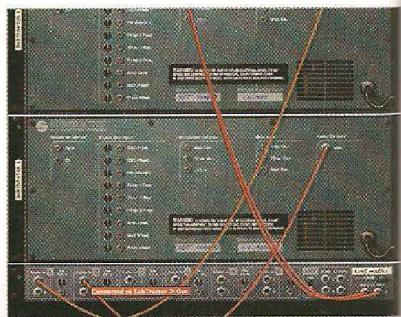
1 > House basslines should be funky and rolling, and we aren't setting out to break the mould here, so we fire up a sub-heavy bass synth preset in Reason's Subtractor analogue synth. We engage Record and play in a basic but skippy riff over one bar.



3 > Another widely used trick in house is to layer a sub-bass (or sometimes even an 808 kick drum with a long attack) underneath the main bassline. So we load up another very low sine-wave-based sub-bass in a second Subtractor. Ultimately we'll compress this heavily, but for now we're just programming.



4 > A common placement for this type of sub-bassline is on the offbeat, as it fills the space between kick drums with low-end pump. Be mindful when the two bass parts play at the same time, though, and adjust the envelopes of both to strike the best balance between the steady thumping and the main bassline - you could even try moving some of the notes away from the strict offbeat placement.



5 > Whenever you're using two bass-heavy parts, they can benefit from some sidechain ducking (using one as a trigger for the other, depending on the patterns) and EQ notching to make sure that each has space to breathe. After that stage, it can then be worth processing the two together on a separate auxiliary channel using a limiter or compressor.

POWER TIP

> Play it again

While sequencers make it very easy to draw in notes by hand, and step sequencers make it easy to program faster parts very quickly, the best way to inject humanity into the machine is to play things in manually using a keyboard, drum pad or other interface. Even (and sometimes especially) if you aren't the best player in the world, you will find yourself creating riffs and parts you would never stumble upon by drawing notes in with the pencil tool. We find the best thing to do is to work around either an eight- or 16-bar loop and record constantly as you play.

>Step by step

The all-important vocal



1 > Rhythmic vocal stabs have always been a feature of house music. Load the **Minds** sample into your sampler and play a series of short stabs rhythmically, as if they were a percussive element. You can also experiment with different note lengths to make cool stuttering effects.

2 > Try tweaking the tuning of the word, too. Higher pitches tend to make a vocal sound faster and punchier, so that's often the best direction to try first - be careful not to make it sound too helium-charged, though! If possible, you should also try to get these vocal stabs in key with your other elements - another reason it helps to place them in a sampler.



3 > If you decide to tune your vocal sample down, you'll inevitably reduce its punch, but adjusting the start point of the sample can remedy this to a certain extent by truncating the envelope. In fact, this technique can also be useful with higher-tuned samples.

4 > We put the **Minds** vocal on a new track and work it into our percussion and bass groove, adding atmosphere, vibe and 'humanity' to proceedings. Letting a recognisable part of the **Minds** sample through means that the stuttered vocal doesn't just come across as percussion - once people hear the whole word, they'll identify the choppy version as a stuttered vocal, which has more dancefloor impact.

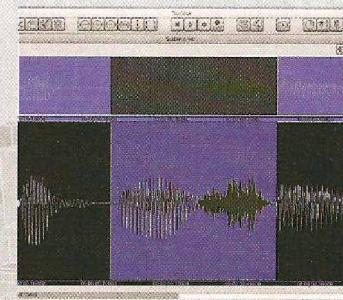


5 > Finally, we put the first word of the vocal on another track and work that into our groove. By separating the words like this, we can fit them into the groove of the track, while adding further swing and anticipation. And at the same time, it gives that slightly juddering, funky electronic vibe that defines house music.

POWER TIP

>Lyrical syllables

Here we have all the vocals in a constant loop, but when employing them in a track, try introducing the parts at different times, perhaps starting with the stutter effect, followed by the full word, then finally using the **Subversive** vocal. Another option is to put the same kind of rolls on a word that you might on a percussive sound or synth. You could also try experimenting further with words comprising more than one syllable, sequencing them individually.



You've got plenty of options when it comes to house vocals, most of them involving the scissors tool...

Getting the vocal right

There is no such thing as a definitive house vocal, but there are a few recurring themes. One of the first things house music capitalised on was the vocal sample. We've already had a look at a few of the ways you can mangle and personalise vocals, but how should you use them in terms of the arrangement?

The earliest house records incorporated full vocal tracks, essentially like soul or disco records, but with distinctive house percussion as the backing track. Obviously, though, just putting a vocal on a house beat wouldn't have been very interesting, so right from the start, a number of tricks were employed to add dancefloor edge.

The first of these is to take a section of vocal and loop it. This could be a line from the chorus, an ad-lib, or even just a small section of a verse. The easiest way to find a section is to put your vocal over your beat, set a short loop point - say half a bar or a bar - and then work the loop start point along your arrangement until you encounter something you like. When you've found a few likely candidates, try placing them over key sections of your track. Perhaps the build-up to the chorus, or the last few bars before the chorus kicks in.

Other tricks involve using beat-slicing effects (or manually chopping parts and reversing them) layered over the vocal. Another classic is to take a section of a vocal, chop it up and re-sequence or repeat some of the words. Yet another is to apply a gate effect to a section of vocal, or one of those aforementioned loops.

In the end, the key is to treat the vocal as another musical or percussive part, to be manipulated, shaped and customised with the groove always in mind.

The anatomy of a house track

1 Automating effects such as reverb can have a profound effect on an arrangement. Here automation is used to add a sense of space to the opening of the track, before it drops out as the elements come in to fill things out, but you can also use it to control the vibe of a track mid-way through. Tweaking the wet control on a reverb on your master output enables you to sweep the vibe between a hands-in-the-air effect and a grit-your-teeth-and-go-for-it section.

2 Resist the temptation to throw all your elements into the mix at once. Even if your track is quite stripped back, doing this will almost always overload it. Here the track loses a couple of elements that not only do we not miss at this point, but which would actually take away from the core groove and clutter things up.

3 We've separated our elements for complete processing control, which generates a very crisp, modern sound. If you're going for an old-school vibe, it's often better to put all of the sounds into one drum machine or sampler and process them together. Your EQ should also be a bit boxier, with less bright top end, as that gives a very modern sound.

4 When you've created a good effect, it can often be a good idea to bounce it down as a separate audio file. This enables you to use it in other parts of the track with slightly different processing, and without having to worry about extensive automation. It also enables us to manipulate the length, and opens up many possibilities for quick audio edits, as we find here on Lead Riser.

5 This arrangement has a quite modern structure in the intro and outro, but one of the things that categorises house music is its slightly more creative approach. A track might start with a vocal sample or a piece of percussion, without a kick drum, making DJ mixing slightly more interesting. Or the structure might not adhere to strict chunks of 16 or 32 bars. Or even eight!

6 Toca Tap and Filthy Layer are the two main elements driving this track along, and it's when these kick in that things really shift into gear in terms of pace and energy. Consequently, we hold them back a while and bring them in separately, to extend the build. For more funk-based house tracks, however, you needn't string things out like this.

7 The Bass drops at bar 33, which is quite a standard arrangement. But if your bassline is funkier, more sparse, lazier or techno-style than ours, there's nothing to stop you bringing it in from the start. This used to be a trickier proposition for DJs, when not every mixer had full EQ on every channel - but you won't find a club mixer like that anywhere these days.

8 Here we see the notes of Nat Riff separated across different channels. This is because it uses a sampled synth, so transposing it up and down affects the sound, as well as its envelope characteristics. Placing each note on its own channel enables us to compensate for this with additional effects.

9 Rather than applying confusing automation to a part during the breakdown, we have a complete channel copy that we can process separately for

the breakdown. This can save valuable minutes - crucial when you're in full flow.

10 Many producers leave unwanted parts muted onscreen, leading to highly cluttered arrangements. While this might work for some people, there's no denying that things are clearer when you can see exactly what's in and what's out at every point in your track. This is even more noticeable when collaborating on a project, or coming back to it after a break of a few days.

11 We use a single kick here, as it's already very sonically rich, but in most house genres, layering different kick drums is an essential part of getting a rich sound. EQ them, if necessary, so that you get their characteristics without cluttering the sound. But if your track is in a loose and funky house genre, try not to make things overly clinical.

12 We use many reversed cymbals and white noise builds throughout our track, each with long delay. But for less epic styles, this will generally sap energy, so use much shorter delays, with less conventional delay times (try switching off tempo sync and setting times manually), and use them less frequently.

13 The breakdown is a full-on euphoric affair, so to keep the track at a sensible length, this is the only real drop. To really emphasise the build, everything is dropped down to almost nothing, using delay tails and filtering in a choppy guitar riff to fill the gap. Always be careful not to lose the energy in these situations - keep it concise!

14 Off-beat hi-hats are almost as much a mark of classic house music as the 4/4 kick drum. They're used here to give a little bounce to an already driving track, but in less driving and more groove-based house, an off-beat hat can actually slow things down a little. If you find that happening, try a shorter, choppier sound on the off-beat instead.

15 Big wonky or rhythmic effects can really fill out an arrangement. We use them extensively after the breakdown to add energy and excitement. They can be even more powerful on sparser tracks, sometimes even taking over from the main riff.

16 As we've already noted, this arrangement is very extended. One element after another is introduced, and when the top lead riff is teased in, it starts in a more stripped-back form, which is atypical of more classic house tracks. With vocal and more funky or tribal styles, the riffs usually have more impact coming in as complete parts.

17 Whatever style of house you're making, one of the key tricks is to use parts that fill in and take over from one another, so that as one element drops out, another with the same groove takes its place. Here we see that interplay between the Mojo and Soul Synth parts when they first come in together, remaining audible throughout.

18 Not only do synths let you create truly original and distinctive sounds, but you also get much more musical freedom in terms of the notes you can play - and, as we see here, they enable creative modulation of the volume envelope.

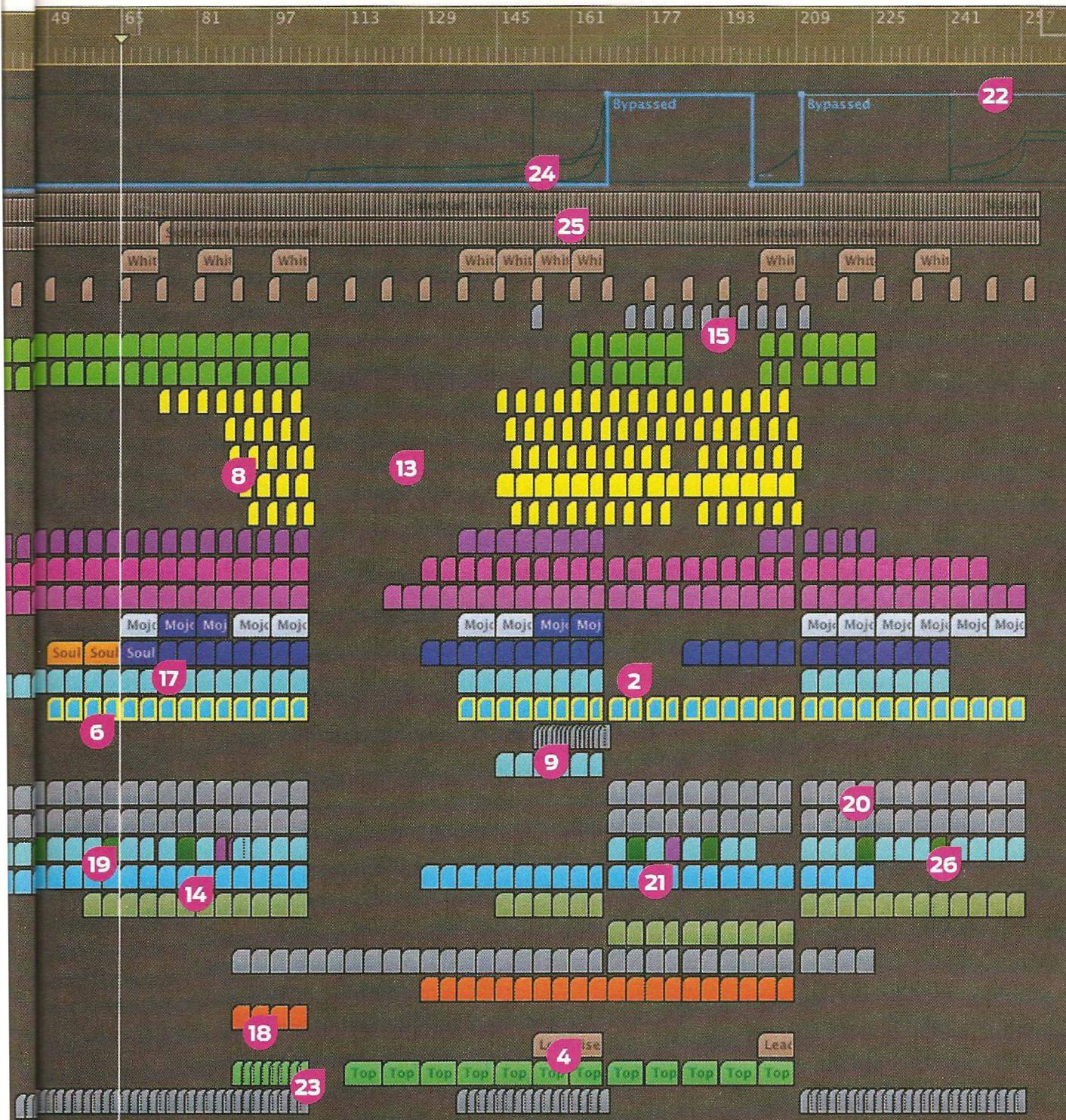


19 Whenever you use a straight 4/4 kick drum, you run the risk of losing some of the funk you're trying to create. Placing much quieter extra kicks in between some of the main beats can mitigate this, even if they aren't particularly audible. Another trick is to miss out the occasional fourth kick, or even use some stuttered ones.

20 Doubling up the bassline with an identical copy is a cool trick. Here we see one with sidechain ducking and

another without, creating a New York-style compression effect when the two are mixed. This results in a much fuller and more rhythmic effect than just using one bassline with ducking.

21 Loop-based music always runs the risk of becoming repetitive, but even the smallest variation can have a massive effect, so it's worth creating a few changes to your parts. The easiest way to keep track of these is to colour each one differently, giving a clear visu



reference as to which parts you've placed where, as we do with the kicks here.

22 The trend in house music has largely been towards longer and longer tracks. There have always been the occasional ten-minute epics, but these have generally relied on having distinct and very different sections, or boasted exceptionally hypnotic grooves, designed to be teased in and out and mixed with for a long time. Here we've gone for a conventional 7-8 minutes.

23 With all those heavily delayed effects and sweeps, a track can get cluttered, so in some places, we've automated the delays to reduce them, while in others, filters are used to quickly remove them, giving us complete control of the drops and builds, so that nothing is too long or too abrupt for our style.

24 There are a number of ways to create a build-up. One of the classics is to use fast repeats of a noise, like a snare, or deploy filtered and

sweeping synths or effects. Here we're using delay and reverb plug-ins on the master out, but while this is very effective for the more driving and techy styles, for slower, more traditional tracks, the former method is often best.

25 Removing the bass from certain key elements (as we have here) can be a very effective way to emphasise a drop or even just a small edit, as the track keeps crashing in as it did when the bass first dropped. Impact is all about

contrast and in this way you can make it sound like something has been added, without having to actually add anything.

26 As with the start, there's nothing to stop you running your bassline all the way to the end. Here it's gradually filtered out, but for other styles, you needn't even bother doing that, as the DJ can tease it out at their own pace, and might appreciate having the option to leave it in until they're ready to bring in the bass on the next track.

Editing, processing, mixing and mastering tips

IN REVERSE

Reverse reverb can be used to create pumping tail effects on a variety of sounds, from drums to vocals. A variation of this is to record the reverb from a sound, then reverse it and place it on another channel underneath. This can then have additional processing applied, and sometimes the original sound can even be removed for a totally different effect.

TAKING IT OLD-SKOOL

A good way to achieve a more old-school vibe is to use just one reverb on a bus, rather than putting a different one on each channel, as the former creates a more cohesive sound reminiscent of early house tracks, when there were less effects units available to the average producer.

UNCLUTTERING

Always be sure to EQ as much bass off your parts as possible without affecting the sound of them within the context of the full mix, as this creates a lot more space for your all-important bassline and kick drum, keeping the overall groove clean, tidy and punchy, all of which will pay off as you incorporate more and more parts.

KNOW YOUR LIMITS

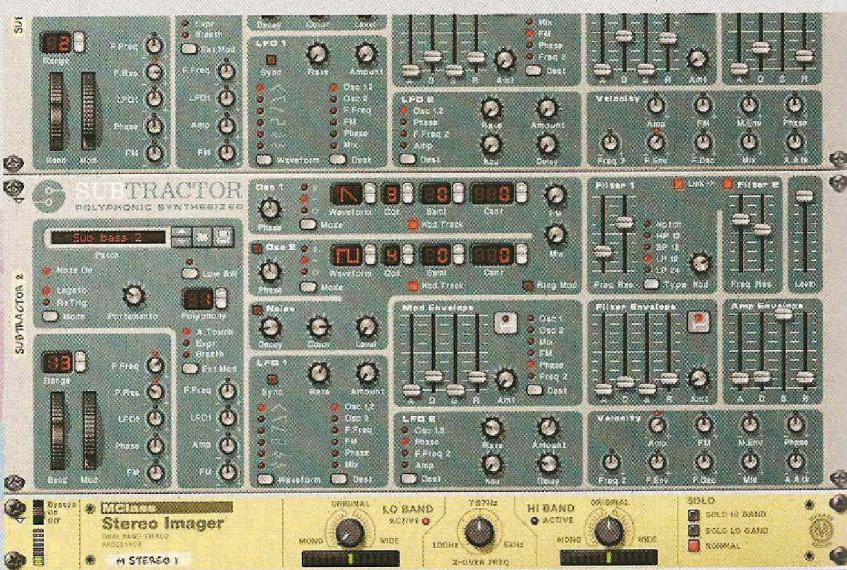
Most dance music producers today create and mix their tracks with a compressor or limiter placed on the master output. This helps gel the elements together and gives a better impression of how the track will sound when finished, particularly as many of the elements will be from disparate sources. We're talking 2-3dB of attenuation at most.

DIVIDE AND CONQUER

When multiple similar elements hit at exactly the same time (claps and snares, for example) - particularly if one of those elements is a kick - try nudging one of them slightly forward using channel delay to give a more exciting and natural sound. This is one of the reasons it pays to keep your different percussive parts on separate channels.

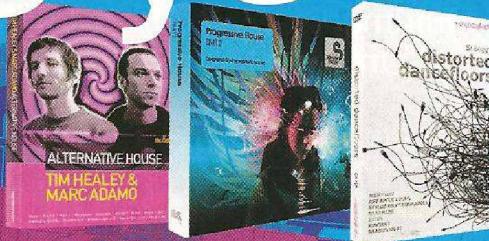
VARIATION UPON A THEME

Our beats in the earlier walkthrough loop over just one bar for simplicity's sake, but you



THE REMIX

- over to you



Now that we've looked at some of the key skills involved in house music production, it's time to put them to the test. And what better way to do that than remix a track and have it released?

That's exactly what house label **Project House Recordings** are offering one lucky **cm** reader. And to complete the prize, the generous people at **Time+Space** have arranged for the winner and two runners up to each receive three of their finest sample collections. These are, in no particular order, Tim Healey & Marc Adamo's *Alternative House* by Loopmasters.

Progressive House by Sample Magic and Si Begg's *Distorted Dancefloors* by Zero-G. Three excellent examples of the diversity of modern house music, and invaluable aids in the studio.

The original track, *Subversive Minds*, by label bosses Blanco & Parker, is the featured complete track in our tutorial, and on the DVD, you'll find not just the complete Logic project, but all the main riffs as audio, plus the individual percussion loops and MIDI files for the lead parts. To make things even more interesting, we've included a selection of samples from each of the prize discs to help get your creative juices flowing. These are broad-ranging, as befits a genre as diverse as house, but all have been hand picked to represent the useful and original parts that could fit into a modern house remix. That said, don't feel compelled to use all (or indeed any) of them in your remix. They're just something to help get you on your way.

Also, of course, this month's featured **cm** samples are well worth checking out.

comprising over 2000 eminently applicable house sounds ripe for plundering.

A question of style

So in what direction should your remix go? Well, our track veers towards the progressive and tech end of the genre, but Project House are simply looking for a great house mix of any kind. Quite what form this takes is up to you, but the winning entry will need to be between 125 and 128bpm, and at least 6 minutes long. Beyond that, the sky's the limit. As long as it makes the label bosses dance the night away, and passes the DJ's dancefloor test, you're in with a chance!

We asked, co-producer, label-founder and partner, Natalie Parker, for some tips...

"When you're doing a remix, you want to offer something that the original doesn't. We want something that can take the track to

slightly different dancefloors."

"Maybe you've something stripped back or groove-based in mind. Perfect! We don't really need another huge, hands-in-the-air track."

And there are no hard and fast rules about which parts to use, either...

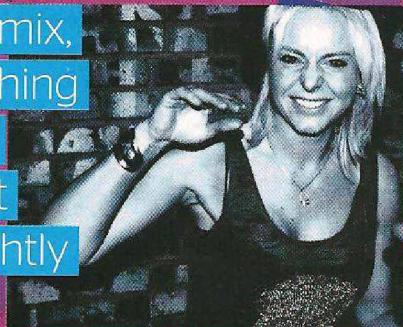
"We don't mind how much or how little of the original you use," explains Natalie, "as long as it uses parts of one or more of the riffs - either using the samples or the MIDI. And make sure it isn't just the same elements in a different order!"

"And if you fancy coming up with a killer vocal - give it a go! We've even given you a couple of vocal samples featuring the track name, so you can try those out. Good luck!"

So get your creative head on and have a go at remixing. We can't wait to hear what you come up with... **cm**

www.myspace.com/projecthouserecordings

"When you're doing a remix, you want to offer something that the original doesn't. We want something that can take the track to slightly different dancefloors"



The house remix

Perhaps more than with any other genre, the art of remixing is symbiotically linked to house. The nature of the music gave rise to many producers with a very distinct sound that was transferable and highly desired, and the speed with which parts could be re-worked made house very remix-friendly.

The easiest way to approach a remix is to think of it as an entirely new track. Many tunes start with a bit of inspiration around which everything else is built, so go through

the parts and pick the ones you want for your own track. Most labels will expect elements of the original, and if you include so little that it's barely a remix, you risk signing away a potentially great track of your own to another artist for a small fee. So if you can't find any parts you like from the original track, unless you desperately need the money or aren't worried about any negative side effects, walk away before you damage your sanity and/or reputation!

To submit your remix, render it as a 320kbps MP3 file, upload it to www.yousendit.com or www.sendspace.com and email the link to projecthouserecordings@gmail.com. The closing date is November 30, 2009, and the winner will be announced in the January 2010 edition of **cm**.

RULES

1. Only one entry per person.
2. Employees of Future Publishing Ltd are ineligible for entry.
3. The competition organisers reserve the right to change the specification of the prize offered.
4. No cash alternative is available.
5. The judge's decision is final and legally binding, and no correspondence will be entered into.
6. Closing date: November 30, 2009.

> on the disc / dvd contents

>Full contents of your 7.8GB Dual Layer disc

cmDVD

PC MAC

IK Multimedia's X-GEAR cm Edition, over 2000 house samples, the latest reader music, DnB duo Matrix & Futurebound on video and more on this month's disc!

DVD contents Full software

Full software

IK Multimedia X-GEAR cm Edition
(Mac/PC)

NI Kontakt Player (Mac/PC)

Togu Audio Line Reverb (Mac/PC)

Mike and Dave Harmony Box
(Mac/PC)

ValhallaFreqEcho (Mac/PC)

rs-met EasyQ (PC)

Sonic Lion Nitrox Solo (PC)

Demo software

Cockos Reaper 3 (Mac/PC)

MODARTT Pianoteq 3 (Mac/PC)

Sugar Bytes Eloquence (Mac/PC)

U&I MetaSynth 5 (Mac)

Tutorial files

cmFocus

Guitar Lab

House 2009

Off the Dial

Producer Masterclass

Q&A

Synth Essentials

The cm Guide to Logic 9

The Easy Guide

Totally Trackers

Samples

2046 24-Bit cm House samples

Reader Music

Delirium Tremens - Sitting Bull

Iridium Mirror - Crimson Drops

Provisional Moves - Fluxus

The Human Experiment - Piano 1

IK MULTIMEDIA X-GEAR cm EDITION (MAC/PC)

Turn your computer into an ultra-realistic amp simulator with this stunning standalone application. To get started with your new software, check out the tutorial on p40 for all the installation and authorisation instructions you'll need.

System requirements

PC Pentium 4 CPU, 1GB RAM,

Windows XP/Vista

Mac 1GHz CPU, 1GM RAM,

Mac OS X 10.4

Web www.ikmultimedia.com



X-GEAR cm Edition will have you rockin'

NATIVE INSTRUMENTS KONTAKT PLAYER (MAC/PC)

Free ROMpler from Native Instruments, including dozens of excellent patches that really showcase this state-of-the-art sample playback software.

System requirements

PC 1.4GHz CPU, 1GB RAM,

Windows XP/Vista, VST/RTAS host or standalone

Mac 18.GHz CPU, 1GB RAM,

Mac OS X 10.4, AU/VST/RTAS host or standalone

Web native-instruments.com

TOGU AUDIO LINE TAL-REVERB (MAC/PC)

This reverb plug-in from freeware purveyors Togu Audio Line is simple but effective, giving you great-sounding ambience effects quickly and easily.

System requirements

PC VST host

Mac AU/VST host

Web kunz.corrupt.ch

MIKE AND DAVE HARMONY BOX (MAC/PC)

Conjur jazzy chord progressions from thin air with this unique instrument. Harmony Box features a variety of chord modes and a sweet-sounding, built-in synth.

System requirements

PC VST host

Mac AU/VST host

Web davenoise.com/blog/

SONIC LION NITROX SOLO (PC)

Newcomer Sonic Lion arrives with a roar with Nitrox Solo, a standalone synth featuring phase distortion, stereo filters, built-in effects and comprehensive modulation capabilities. Nitrox Solo is donationware, so if you use it regularly, please consider making a donation via the author's site, where you can also register to download the VST plug-in version.

System requirements

PC 2GHz CPU, 1GB RAM, XP/Vista

Web www.sonic-lion.com

RS-MET EASYQ (PC)

Robin Schmidt's latest free plug-in is an easy-to-use equaliser that won't excessively tax your computer's CPU. Each of the filter stages can be used in bell, high- or low-shelving, notch and low- or high-pass mode, with a 6dB or 12dB slope.

System requirements

PC VST host

Web www.rs-met.com

VALHALLA DSP VALHALLAFREQECHO (MAC/PC)

This amazing effect plug-in combines a wide-range frequency shifter with an analogue-style delay to create all manner of very spacious and wacky effects.

System requirements

PC VST host

Mac AU/VST host

Web www.valhalladsp.com

wave
alchemy

Looking for inspiration?

Demo software

COCKOS REAPER 3 (MAC/PC)

The lightweight but full-featured DAW is back, with improved MIDI editing capabilities, separate lanes for each automation parameter and nested track folders. The trial version is non-expiring, but if you use it after the 30-day evaluation period, you should buy a licence from the Reaper website.

System requirements

PC Windows 98 or later

Mac Mac OS X 10.4 or later

Web www.reaper.fm

SUGAR BYTES ELOQUENCE (MAC/PC)

A powerful step-sequencer plug-in that will utterly transform your MIDI tracks. Eloquence can be used to create constantly evolving parts in the studio or for live performance. The demo times out after each 30-minute session, won't save and expires after 30 days.

System requirements

PC 2GHz CPU, 512MB RAM,

Windows XP/Vista, VST host

Mac 2GHz CPU, 512MB RAM,

Mac OS X 10.4, AU/VST host

Web www.sugar-bytes.de

PROGRAMS & PLUG-INS

Most of the programs on the DVD-ROM are presented as installers – simply double-click the installer icon and the application does the rest. However, plug-ins are often presented as .dll (PC), .vst or .component (Mac) files. To 'plug' the plugin into your VST/AU host, just copy the plugin file into your VST or AU plugins folder, as appropriate.

MODARTT PIANOTEQ 3

(MAC/PC)

This virtual piano uses physical modelling, rather than a massive number of samples, to create its sounds, and the latest version has many exciting new features, including a new acoustic model that enables you to place up to five microphones anywhere around the piano. The limitations of the demo version are that eight of the notes are disabled, and that it quits after a 20-minute session.

System requirements

PC Windows XP/Vista,

VST/DirectX host

Mac Mac OS X 10.5,

AU/VST host

Web www.pianoteq.com

U&I METASYNTH 5 (MAC)

The latest version of the cult Mac standalone synthesiser includes new instrument modes and capabilities, an enhanced Montage Room and tons of other welcome improvements. The demo is save-disabled.

System requirements

Mac Mac OS X 10.4

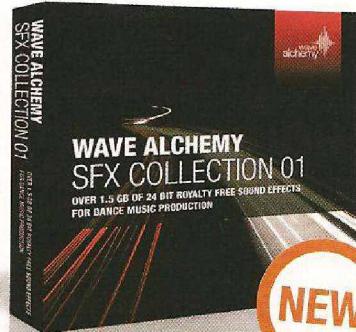
Web uisoftware.com

USING THE DVD INTERFACE

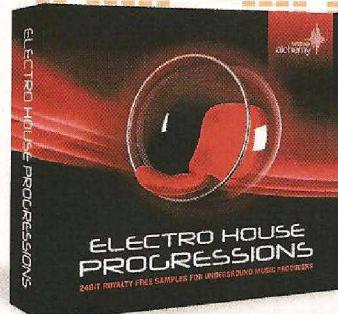
1 Put the DVD-ROM in your DVD drive, let it spin up, and wait for the interface to appear. If it doesn't autorun, browse to it in Explorer/Finder and double-click Computer Music for OS X or PC, as appropriate. Read the disclaimer and click Accept when you're done.

2 The main interface will open. Mouse over the links for each section to get a brief description of their contents, and click on your button of choice – in our case Software...

3 An Explorer/Finder window will open, showing you the contents of that folder. Any executable files can be run directly from the DVD by double-clicking them. Demos are generally presented as installer applications, but check any Readme text files for additional installation information.



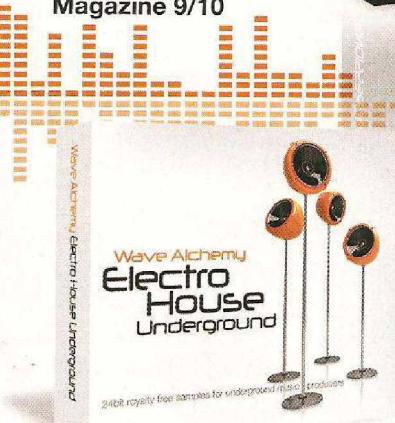
Need to
inject your
productions
with that
professional
feel?



"An Elite Sonic Flavor"
Computer Music
Magazine 10/10

"Combine this
with Electro House
underground and
you've got the ultimate
electro library at your
fingertips"

Music Tech
Magazine 9/10



"All the material in
this library is of a very
high standard"
Computer Music
Magazine

"It doesn't get much
better than this"
Music Tech
Magazine 9/10

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> make music now / ik multimedia x-gear **cm** edition

>Exclusive full software! **PC** **MAC**

IK Multimedia X-GEAR cm Edition



ON THE DVD

FULL SOFTWARE

It's in the Full Software

folder - go get it!

This powerful guitar and bass amp simulator delivers stunning tones in the studio and on stage. Here's how to fire it up and get rocking...

> X-GEAR **cm** Edition's GUI is divided into five screens: Tuner, Stomp, Amp, Cab and Rack, though the latter is disabled in this version. X-GEAR is actually a 'shell' program that wraps together two separate packages: AmpliTube 2 Duo and Ampeg SVX Uno. The beauty of this is that all the elements of each package (effects, EQs, amps and mics) are interchangeable - giving you maximum flexibility to create

your own unique tones.

X-GEAR **cm** Edition features two guitar amp sims, complete with spring reverb, modelled on famous Fender and Marshall amplifier and cabinet setups. There's also an emulation of Ampeg's classic BA-500 bass amp and its matched cab. These simulations have received plenty of praise, with top session bassist Steve Walters telling **cm** back in issue 120: "I did a

gig using the hardware amp and I thought the software was better."

Aside from the basic setups, there's also a high-quality tuner (one of the best we've used), three stompbox effects (Distortion, Wah and Analog Chorus) and three different mics, with four different options for their placement.

There's even more flexibility in the shape of X-GEAR **cm** Edition's eight different signal routing

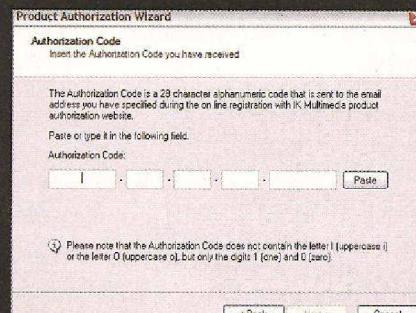
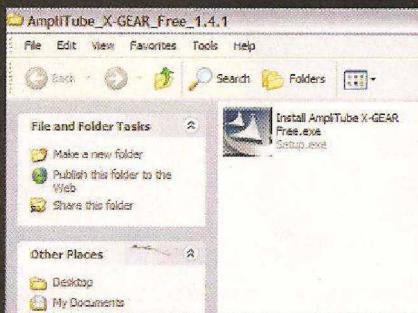
options. For example, you can run two full setups independently of each other, or have one stompbox setup running into two different amps - there are hours of experimentation awaiting you!

What's more, audio files can be imported and looped, and have their pitches and tempi edited. This last is especially useful if you're trying to figure out how to play a favourite lick or song. **cm**



> Step by step

Getting started with X-GEAR cm Edition



1 > To install X-GEAR cm Edition, browse to **Software/PC Software/Full Programs/X-Gear CM Edition** on the DVD, and copy the folder to your hard drive. Double-click the **Install AmpliTube X-GEAR Free.exe** icon to run the installer. Mac users should grab their install file from the **MacSoftware** folder, clearly.

2 > Although X-GEAR cm Edition will work without restriction for ten days, authorising your copy is simple and will open the program up for long-term use. Go to www.ikmultimedia.com/computermusic and enter your e-mail address. Your serial number will then be sent straight to your email inbox.

3 > The easiest way to transfer your serial number accurately is to copy it from the email and **Paste** it (using the button) directly into the Product Authorization Wizard window. Once you've done this, follow the installer's instructions to create an IK Multimedia account online. Once you've done that, you'll be given another code to activate the software.



4 > Once the software is installed you need to set it up to work with your audio interface. Go to **Settings>Audio MIDI setup**. In the top box, select **ASIO** (Mac users don't need to do this, as it'll already be set to CoreAudio). Click the **Output audio interface** box and select your interface. Hit **OK**, plug your guitar into your audio interface and you should hear it coming through clearly.

5 > Adjust the input of your audio interface, so that the guitar doesn't clip when you play as hard as you can. Then change the **Input** and **Master** levels, so that they're as loud as they can be without going into the red (indicated by the two red lights that stay illuminated when your signal 'clips').

6 > X-GEAR cm Edition's built-in **Tuner** is one of the finest there is. Use the big red switch to turn it on, or you'll be staring at a blank screen, even though there's noise coming out of the speakers. Now tune up in your regular way - the light will turn green when each string is in tune with the note indicated on the right.



7 > The **Pre Model** setting governs the overall amp and cab setup. Select this by either clicking on the amp name (in this case, **American Tube Clean 1**) to reveal a menu, or using the up and down arrows on the right. Although the **Gain** dial is fixed (this keeps the sound super-clean), there's still a ton of flexibility to be had with this single amp.

8 > Adjusting the sound on the amp units is easy. Simply click the dial that you want to change, then move your mouse up to increase the value and down to reduce it. Here we're reducing the **Presence** to 1 in order to dull our tone slightly.

9 > The great thing about X-GEAR cm Edition is that it enables you to easily interchange elements of the various amp models. Click the current EQ unit name to reveal all of the available options. Here we're using the Marshall emulation **British Tube Lead 1**.

> Step by step

Getting started with X-GEAR **cm** Edition (continued)



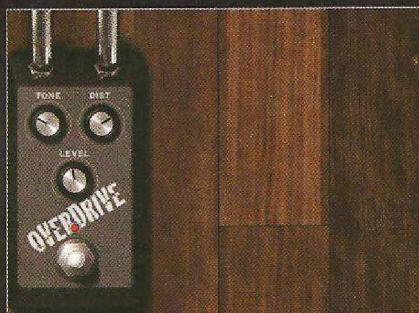
10 > The **Cab** screen offers even more options for varying your guitar or bass tones. It enables you to choose between three different mic types. As before, simply click the mic name to reveal a menu, or use the up and down buttons to scroll through your options.



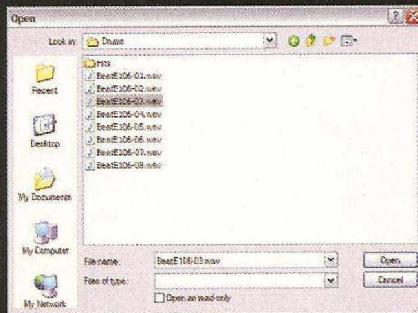
11 > Once you've selected a mic that you're happy with, you can adjust its position. Here, we switch the mic over to **Off Axis** (to one side of the speaker cone) for a warmer sound, and select the **Far** setting to give the illusion of distant miking, which adds some virtual 'room' to our tone.



12 > We've saved the **Stomp** screen till last even though it's the second option that you come to. This is because it's a good idea to get your basic sound in place before adding effects. Now we select the **Overdrive** pedal to slap some grit onto our clean tone.



13 > Like the amp controls, the stompboxes are easy to edit. Simply click the dial you want adjust, then move the mouse up to raise the value and down to decrease it. Here we set the amount of **Distortion** to 7 and the **Tone** to 3. This gives us a warm sound that's not too distorted or mushy.



14 > To import an audio file into X-GEAR **cm** Edition, just click the **Open Audio** button at the top left of the main screen, then browse to the file you want. This is great for slowing down tracks that you want to figure out, or, as we're doing here, importing loops to jam along with.



15 > When you import an audio file, a waveform appears at the top of the GUI. You can either play the file as it is, using the transport controls at the top left of the screen, or manipulate it to suit your purposes, like this...



16 > If you want to play along to the track in a different key (lots of metal tracks are down-tuned, for example), simply adjust the **Pitch** knob - this changes the overall pitch of the track without affecting the speed of playback. Small adjustments usually work best here.



17 > As well as adjusting the pitch of audio files, you can also change the speed. This is great for manipulating drum loops, but also invaluable for guitarists learning to play difficult tracks. Like the **Pitch** control, it's simply a matter of adjusting the **Tempo** dial.



18 > Finally, you can set loop points in the audio. Clicking the **A** button will produce a ruler in the audio file. Set this where you want the looped section to start. Selecting the **B** button will produce a second ruler which you should place where you want the loop to end. This section will now repeat automatically.

>Royalty-free, pro-quality sounds!

2046 samples

PC MAC



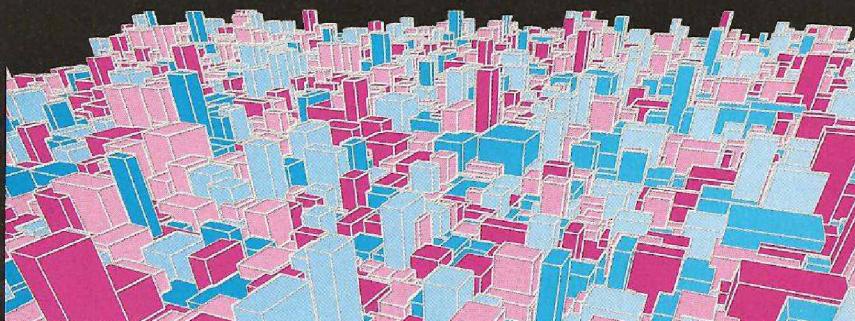
This month's exclusive collection contains a cornucopia of beats, basslines and other samples to get your house tracks pumping

2046 24-bit cm House Collection 2009 samples

To accompany this month's guide to creating your own house masterpiece, we've commissioned an enormous collection of beats, basslines, loops and instruments. The recession might be adversely affecting the building industry, but with these exclusive samples, you'll be knocking up your perfect house in no time!

Cyclick

Cyclick's contribution comprises five tempo-based loop construction kits, covering beats, basslines and instrumental sounds, plus five drum kits and 13 multisampled synth/bass instruments. The drum kits and multisamples come with CMplay patches for your convenience, enabling you to jam out your ideas with the easy-to-use CMplay instrument, which as always, you'll find in the **CM Studio** folder.



Producer Masterclass Video

Artists **Matrix & Futurebound**

Two UK legends join forces for this remixing masterclass, in which they take the catchy *Falling* by Agent X, featuring Ultra and ex-Sugababe Mutya Buena, and turn it into a veritable rollercoaster of a DnB track. Watch as the duo show in explicit detail how they create their slamming beats and basslines, and be sure to check out the bonus videos, where the lads individually explain how they get their characteristic lead sounds.

Web www.myspace.com/matrixandfuturebound

Groove Criminals

The Groove Criminals are certainly no strangers to "the big house", so it should come as no surprise to learn that they're intimately familiar with this particular genre. In the **Groove Criminals** folder, then, you'll find bass, leads, brass, organs, loops, beats and chord samples, all with CMplay patches.

www.groovecriminals.co.uk

Hattrixx

Hattrixx has brought some tasty organs, pads, pianos and synth samples to the house party, all with CMplay patches included. These fantastic instruments give you a wealth of options for embellishing your very own house tunes, including everything from nasty electro leads to soaring strings. Load them up and get building!

www.hattrixx.co.uk



Sample and video playback

cm videos are presented in MOV format, which means that you have to have QuickTime, QuickTime Alternative or VLC installed on your system to play them. Macs feature QuickTime as standard, and PC owners who don't have QuickTime installed can use VLC instead. This is an open-source media player that can handle pretty much any format you can throw at it, and you'll find it in the VLC Media Player folder on the cm DVD. VLC is also recommended to Windows users who find that 24-bit samples won't play back in Windows Media Player. For the latest version, go to: www.videolan.org

HAVING PROBLEMS?

In the unlikely event that you have trouble with your disc, send an email to support@futurenet.co.uk and they'll help you out. Please do not phone us, as we don't give technical support over the telephone!

If you experience a problem with your software, you should first refer to the software manual. This is often delivered with the software itself or is sometimes placed on your hard drive when you run the Installer. If you find that you don't understand some of the features of the software, remember to read the manual first. Should you be unfortunate enough to run into any technical difficulties with the software, it is often best to get in touch with the developer of that software - they are probably better-equipped to offer you the support you need than we are.



BROKEN DISCS: If your disc is corrupt, cracked or otherwise inoperable, we'll send you a spanking new replacement within 28 days. Send the DVD to: Disc Department, Reader Support, Future Publishing, CMU144/Autumn/09, Bath BA12BW. And don't forget to include your name and postal address!

cm STUDIO

Our ever-expanding suite of exclusive applications, virtual instruments and plug-in effects for Mac and PC!

APPLICATIONS

XT Software energyXT2.5 Core CM (PC/Mac/Linux)
VST host and sequencer with modular routing

Outsim SynthMaker CM (PC)
Create your own VST synths and effects

MuTools CMusic (PC/Mac)
VST-compatible audio and MIDI sequencer

i3 DSP-Quattro CM (PPC Mac)
Powerful Mac audio editor and plug-in host

INSTRUMENTS

Sugar Bytes Artillery2 CM Edition (PC)
Multi-FX with internal sequencer

Ummet Ozcan Genesis CM (PC)
Another amazing virtual analogue synth



Muon CMplay (PC/Mac)
Powerful ROMpler instrument

Dominator (PC)
Virtual analogue synth with a classic feature set

u-he ZebraCM (PC/Mac)
Amazing virtual analogue synth

LinPlug AlphaCM (PC/Mac)
Subtractive synth with ring and amp modulation

Homegrown Sounds Astralis CM (PC)
Modulation-heavy 'soundscape' synth



Homegrown Sounds Astralis Orgone CM (PC)
Flexible sample-based synth

XT Software EnergyCM (PC/PPC Mac)
Step sequencing analogue-style synth

This month, be sure to try...



Krakli CMorg

Bringing the old-skool sound of drawbar organs into the virtual realm, CMorg is a tweaker's delight, with a selection of vibrato and percussion settings, drive and shape controls, reverb, rotary speaker effect and, of course, those all-important drawbars. Check out the presets to see how versatile it is – there's everything from church organs to soulful washes. CMorg is an organ that will please anyone who gets their hands on it!

Fabfilter One 2.01 (PC)
Beautiful-sounding single-oscillator synth

Kotkas Paax 3 CM (PC)
Feature-packed soft sampler

Odo Synths Unknown 64 CM (PC)
C64 SID chip-emulating VSTi

Krakli CMorg (PC)
Vintage organ instrument

AlgoMusic ElectraBass Rack CM (PC)
Easy to use bass synth that's packed with presets

Humanoid Sound Systems Scanned Synth CM (PC)
Create abstract noises and haunting instruments

Muon CM-101 (PC/PPC Mac)
Analogue-style VST synth

Muon SR-202 (PC/PPC Mac)
16-pad VST drum machine

Muon CM-303 (PC/PPC Mac)
Emulation of the classic Roland TB-303 synth

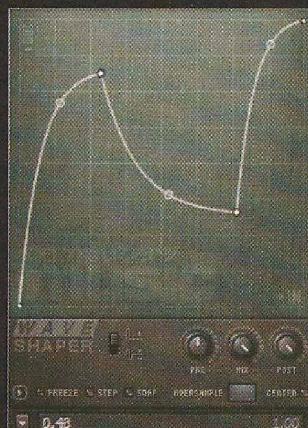
Muon DS-404 (PC/PPC Mac)
Powerful 16-part multi-timbral VST sampler

Muon CM-505 (PC/PPC Mac)
Analogue drum synthesis made easy

Audio Damage Pulse Modulator (PC/Mac)
Wild, stombox-esque modulation effect

Betabugz Vascillator (PC)
Semi-modular feedback delay multi-effect

Image-Line CM WaveShaper (PC)
Flexible wave distortion effect



PSP Springverb (PC/PPC Mac)
Authentic VST spring reverb effect

SimulAnalog Guitar Suite CM (PC)
Plug-ins modelled on classic guitar effects and amps

Ohm Force Ohmygod! (PC/Mac)
Crazy resonant/comb VST filter

Camel Audio CMFuzz (PC/PPC Mac)
Quick and dirty distortion

EFFECTS

Acustica Audio Nebula3 CM (PC)
Incredible vintage-kit-sampling multi-FX

Image-Line CM Vocoder (PC)
Special cm version of FL Studio's FL Vocoder

Aixcoutic Creations Electri-Q CM (PC)
Sweet-sounding and flexible equalisation

Martin Eastwood CompressiveCM (PC/Mac)
Compressor/limiter with sidechain input

cm Studio session

Chain reactions

PC MAC



We show you how to sequence effects using MIDI tracks and Sugar Bytes Artillery2 cm Edition, to create constantly evolving sounds

> Here, we're going to show you how you can create your own mental multi-effects with Sugar Bytes' Artillery2 cm Edition. This plug-in is one of the most flexible and capable effects in the cm Studio, not least because you can trigger it via MIDI. This enables us to create dynamic effects without resorting to automating the

parameters of multiple plug-ins. More than one effect can be applied to an audio stream at once, making it possible to create hugely complex-sounding effects sequences with simple MIDI parts.

Artillery2 cm Edition includes six effects from the commercial version's arsenal of 28. These are Phaser, Filter Delay, Amp (ideal for

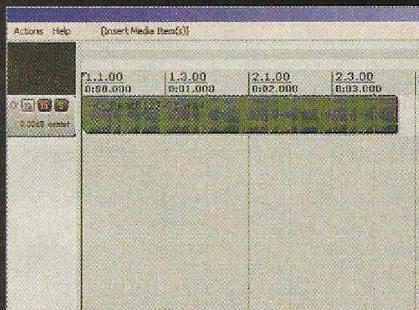
panning and sidechain compression style effects), Lowpass (a resonant filter), Overdrive and Looper (a handy BeatRepeat-esque effect). All these are exciting enough on their own, but throw in the ability to trigger or modulate them via MIDI, and use multiple effects at once, and you've got something much greater than

the sum of its parts.

The sheer flexibility afforded by Artillery2 cm Edition makes it both a handy mixing tool and a great source of sound-design inspiration. It might sound complex, but this simple guide will show you exactly how to stack and sequence these effects step-by-step. Let's bring on the big guns... cm

> Step by step

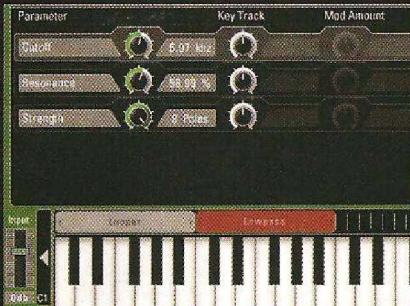
Sequencing effects with Artillery2 cm Edition



1 > Install Artillery2 cm Edition to your shared plug-ins folder - check CM Studio\CM Studio Tutorials for help. Drag 24Bit CM House Collection 2009/Cyclone/LoopKit A127bpm/Beats/HO_BeatA127_01.wav onto your desktop, then drag the sample into your DAW's arrangement view (we're using Reaper).

2 > Set Reaper's tempo to 127bpm. Click the track's fx button to bring up the plug-in menu, locate Artillery2 cm Edition and double-click it. The default patch is empty, so to create an effect zone, drag on the area above the virtual keyboard and stretch it over the first octave by dragging the left- and right-hand edges.

3 > To pick an effect for this zone, click Select Effect. Choose the Looper, then set the Size control to minimum and the Key Track to maximum. The Size dictates how often the effect loops, while Key Track tells the plug-in that we want the pitch of the MIDI input to modulate the loop amount.



4 > Create a new track in Reaper, and click its io button. Hit Add new send... and select 1:HO_BeatA from the list. This routes the MIDI data from track 2 to track 1. Now, when you sequence notes on this track in the octave C2-C3, you'll hear the Looper effect triggering.

5 > Let's add another layer of effects. Again, double-click the area above the virtual keyboard, but this time, stretch it over the second octave. Pick the Lowpass effect from the Select Effect menu. Let's modulate this slightly differently - we can use the Universal Modulator to change parameters, as well as MIDI notes.

6 > Set the Universal Modulator to Envelope mode and copy the settings shown here. Turn the Cutoff level all the way down, and its Mod Amount up full. Now when you play a note in the second octave, you'll hear the affect of the filter envelope on the sound. Now trigger away to your heart's content!

Reader music

Four brave readers step up to the plate. Will their demos prove to be big hits or strike-outs?



Send us your music

If you want the chance to be featured in *Reader Music*, send us an original composition on CD, a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. And - this is very important - make sure no copyright samples have been used! The best tracks we receive each month will be reviewed and featured on the **cm** DVD. What are you waiting for?

Fill in the form below and send it, with your track and any additional info you'd like to include, to:

**Computer Music,
Reader Music,
30 Monmouth Street,
Bath BA1 2BW, UK**

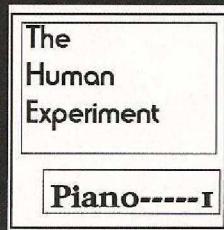
Rules:

1. Send no more than two tracks.
2. Please send the music on CD.
3. The audio and any MIDI files used must all be original and/or royalty and copyright-free

THE HUMAN EXPERIMENT

Piano 1

Artist John Sheldon
Contact johnsheldon@talktalk.net



The literal connection to the sample of an organ part is the easy bit, but capturing a melody that is both engaging and fitting is extremely difficult. This part is essentially simple, but it's surrounded by stabs and other things that help disguise this aspect of it. At times, it feels a bit too busy and you're not sure what you're supposed to be listening to. However, the 'and-one-two-three' rhythm of piano and bass echoing the drum track ensures both a listening anchor and a part that has the necessary youthful innocence. The organ sound is a good choice in its toy-like attributes, and all of the others are very straightforward out-of-the-box instruments that apply well.

The low end of the mix is a bit cloudy, however; it could do with some EQ to hollow out the 200-300Hz range. The panning is also a little too central, so extreme separation might help create the open sound that this mix requires.

What the artist says:

"Piano 1 was made using samples, soft synths and NI's Kontakt. I started with the vocal sample of children and built the organ part around that in Reason. I then added drum 'n' bass samples and created a distorted piano part in Kontakt. Extra synths were added to fill things out."

Equipment used Pentium II PC, M-Audio Audiophile 2496 soundcard, Cakewalk Sonar 2, Rob Papen Albino, Propellerhead Reason, Native Instruments Kontakt, various sample CDs, Sony hi-fi, MIDI keyboard

IRIDIUMMIRROR

Crimson Drops

Artist Ron Hodges
Contact www.myspace.com/iridiummirror



> At the heart of this track is a school headmaster-like vocal sample, and around it, all of the musical treatment is geared towards that sample's sentiment. The evident skill lies in the success of the harmony between those two aspects, resulting in a piece with an undeniable naïve charm.

The literal connection to the

> You'll have to get used to the time signature of this one before you dive into anything else. 12/8 is very unusual for these pages, but it opens up a world of possibilities for the jump and movement, as the melodies and changes cut in ahead of expectation.

The bass sound and riff itself

are the bosses here. Its legato and wide, slightly reverberant nature has a hint of dark menace about it. Behind this are much more reverberant synth lines - check the intro for the hauntingly quiet line behind the bass, followed by a much stronger melody, which makes the track interesting without being repetitive, while also creating a feeling of familiarity.

The drum pattern creeps up on you, because at first it feels like a straightforward four-to-the-floor number. However, due to the odd time signature, the snare and hi-hats take you by surprise. There's even a hint of Joy Division electro in the drums and synth lines, too.

The track could handle a more established drop where the pumping kick and driving hi-hats are lost - and where the depth of the reverbed pads takes you further out into space - but we like the relentless, subterranean torment very much.

What the artist says:

"This track was composed/recorded/mixed using Ableton 8 Suite, plus Native Instruments Absynth 3 and 4, with the post-production work done in Adobe Audition. The track uses a 12/8 time signature and indulges my love of counterpoint - the second section switches melodies between bass and synth lead, before reverting back."

Equipment used Dell XPS 630, Ableton Suite 8, NI Absynth 3 and 4, Adobe Audition 2.0, Creative Labs SoundBlaster X-Fi Elite Pro, Edirol PCR-M30 keyboard

Artist/band name:

Contact name:

Equipment used:

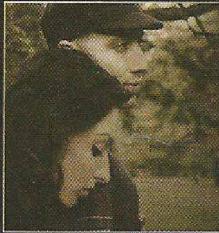
Address:

Phone number and email address:

DELIRIUM TREMENS

Sitting Bull

Artist Nick Bovaird
Contact www.myspace.com/deliriumtremenssongs



> You'd be right in thinking that this track doesn't sound much like traditional computer music. It's a tenuous connection, but although none of the sounds are software generated, the track was nevertheless recorded and mixed using a computer, and it's a good example how the music doesn't always follow on from its environment.

This is a good pop song, with a strong vocal and a very competent backing band, but the sound of the finished mix is abrasive, small and unwelcoming - it should be big, bold and driving! Listen to the sound of the guitars and the top-end of the kit to hear the nasty, thin edge that makes you clamp your ears, even at low volumes. This can only be the effect of budget analogue-to-digital converters or misuse of Cubase's plug-ins, particularly the EQs, which can easily mash the sound to bits if you're not careful. These things aside, the balance of the instruments is quite good.

However, the mix is almost entirely mono and the impact of the chorus needs to be increased with a bit of width, especially on the guitars. The vocal performance is excellent in both lead and harmony, and the sound could be made yet more interesting with a subtle, short delay or some kind of similar processing. It's the dryness of the vocals and the kit that makes for the slightly boxy sound.

What the artist says:

"It's a song about the irresistibility of bastards - you know who you are! We recorded the song as a band in a professional studio, then mixed it at home in Cubase."

Equipment used Custom PC, Steinberg Cubase SX3, PSP Vintage Warmer, Sonalksis compression and EQ plug-ins, drums, bass and guitars

Listening Lounge

www.musicradar.com/forum

Artist Obscuresounds
Title Not Nice To See You
Contact www.obscurerounds.com/audio/not_nice_to_see_you.mp3



60s psychedelia is mashed up particularly well here in this homage to Tomorrow - a band from back then, if you didn't know. You can almost smell the excess from the eccentric outpourings. It has a naïve English charm.

Yet this track also brings modern elements into play, including synth swishes, loops and samples. In fact, it's hard to tell what's original and what isn't.

Of particular note are the drums that Lawrence has added, with a good balance of the jauntiness and bounce of the period and a modern groove element. Plus, that bassline works with them a treat!



musicradar.com
 The place for music makers

What's wrong with my mix?

Top Cat Music's main man casts judgement over this month's featured track, but will our pro producer and engineer be amazed or fazed?

Producer Tim Oliver

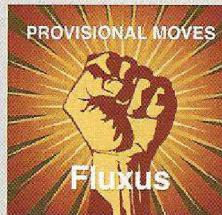


Tim's still hard at work in the studio, currently exercising his skills on a track that combines the talents of U2 and Sinéad O'Connor. On top of that, his label, Top Cat Music is going from strength to strength, with the debut release from starlet-in-waiting Nicole Fermie set to woo the world.

PROVISIONAL MOVES

Fluxus

Artist Seamus O'Duignain
Contact www.myspace.com/provisionalmoves



> Jazz alert! OK, almost, but not quite - the electro elements are enough for me not to inform the authorities. But don't let me put you off, because the feel of this track is lovely and cocoon-like, particularly in the way that the warmth and space envelops you.

The arrangement meanders nicely - one sound or motif takes over from another in a sinuous development. There are some sections of repetition, such as in the intro and

parts of the middle, but it's masked by the chaotic overlay of random sounds that characterise so much of this piece. And there are a lot of short drops that come back in too soon because none of the themes are particularly well established. The song could do with a little more space, too, which would give the listener the opportunity to enjoy the interesting FX that Seamus uses. I like the way the whole thing gradually falls apart towards the end, though, culminating in the naïve whistling into a talkback mic. I must say that the way things aren't too rigorously controlled is admirable, too, leaving some lovely rough edges where notes are dropped and things don't always tie up - making the track very human.

The jazz theme is exacerbated by the sax sound in the intro, however. Fortunately it's not a bleating solo, but more of a warm, throaty tenor riff that's later answered by a counter-melody on a synth. Behind the main theme are big, washy, breathy pads and, above that, high-pitched noises, whistles and so on, and a driving bassline anchors the piece perfectly. All of this makes for a vast soundstage, which, although busy, is very well managed. The drums are a curious array, with some syncopated rhythms leading into very square beats that plod along. It's an odd choice, but it works in a cerebral if not physical way.

Seamus has done a wonderful job of mixing such a busy tune. With so much going on, it could easily lose focus, but there's always something there to grasp onto. The overall tone is warm, but there's plenty of top-end excitement, too, and with judicious use of reverb, you get a tremendous sense of depth. This is a timeless track that works very well indeed for me.

What the artist says:

"This track originally sounded hard-hitting and minimal in my head, with the emphasis being on an off-beat kick. As usual, though, it turned into something different - ending up more atmospheric and layered. The original riff had a guitar sound, but the switch to saxophone worked better and completely changed the vibe."

Equipment used PC computer, Echo Gina G interface, Steinberg Cubase SL, Native Instruments Kontakt 2, soft synths and plug-ins

cm Producer Masterclass

Matrix & Futurebound



The drum 'n' bass duo deliver a wealth of knowledge as they show you how they remixed *Falling* by Agent X, featuring Ultra and Mutya



Matrix (left) & Futurebound:
guiding lights on the drum
'n' bass scene

> In the 90s, both Matrix and Futurebound (known to the taxman as Jamie Quinn and Brendan Collins) were both titans of the more cerebral side of DnB. The cinematic atmospherics of Futurebound track's such as *Sorrow*, and the tech-jazz of Matrix's minimal rollers like *Sleepwalk* belied the bombastic anthems to come when the pair began collaborating in 2005.

Tracks like *Strength 2 Strength* and *American Beauty* cemented the duo's reputation as purveyors of muscular yet musical crowd-pleasers, and their success paved the way for a full-on artist LP, 2007's *Universal Truth*.

Matrix & Futurebound have had more than their fair share of remix commissions, too, turning Justin Timberlake's *LoveStoned* into an electro-house stormer, and The Ian Carey Project's *Get Shaky* into a futuristic DnB roller.

In this month's *Producer Masterclass*, the pair show us how they work their remix magic on *Falling* by Agent X, featuring Ultra and ex-Sugarbabes Mutya Buena. In the walkthrough and video, you'll see how they reworked the vocal and created an entirely new backing track. From beats and basslines to synthesis and vocal processing, the duo give you full disclosure on their - until now - closely guarded secrets.

On the DVD, you'll also find individual tutorials with both Matrix and Futurebound, showing us how they create their signature lead sounds, as well as Jamie's investigation into digital EQs - see *Are EQs created equal?* for more on this. And if you like what you hear, check out the forthcoming *Acts of Mad Men* compilation on Viper.

Web [www.myspace.com/
matrixandfuturebound](http://www.myspace.com/matrixandfuturebound)

Selected kit list

HARDWARE

MacBook Pro 2.4GHz
Apogee Ensemble
Dynaudio BM15 monitors
Event Audio 20/20 monitors
Korg microKontrol
Sequential Circuits Pro-One
AKG SolidTube mic

SOFTWARE

Steinberg Cubase 5
Lennar Digital Sylenth1
GForce Oddity
PSP VintageWarmer 2
PSP 84
Sonnox Oxford plug-ins
Native Instruments plug-ins
Ohm Force plug-ins

Selected Discography

SINGLES

Strength 2 Strength - Metro/Viper, 2005
American Beauty - white label, 2006
Skyscraper - Metro/Viper, 2006
Womb - Metro/Viper, 2008

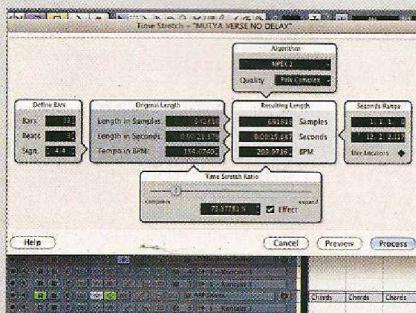
ALBUM

Universal Truth - Metro/Viper, 2007

REMIXES

Justin Timberlake, *LoveStoned* - Jive, 2007
Nu:Tone featuring Natalie Williams, *System* - Hospital Records, 2007
The Ian Carey Project, *Get Shaky* - 3 Beat Blue, 2009

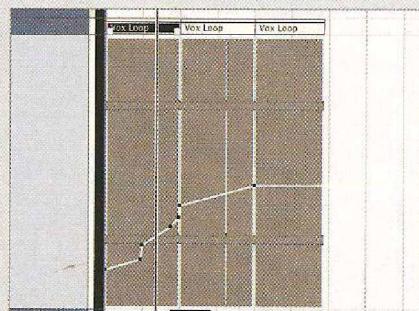
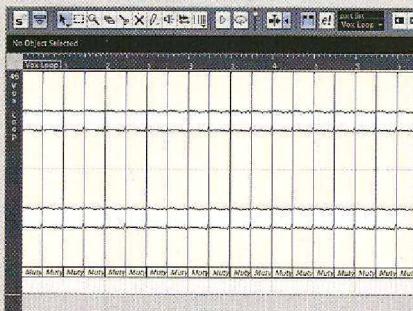
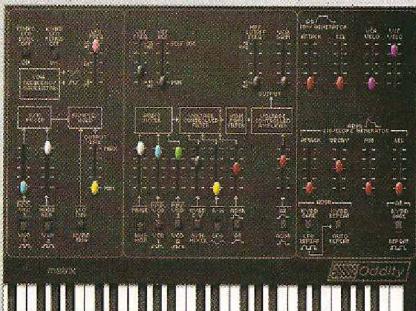
> Step by step Creating the intro



1 > The only source material provided for the remix was the acapella, which was originally at a bassline house tempo of about 130bpm. Naturally, this has to be sped up to fit a more pacy DnB tempo. To do this, the vocal is timesretched with Cubase's offline timesretch processing, which preserves the vocal's pitch.

2 > The pair decide that a musical intro followed by a tear-out DnB drop is the way forward. To create a chord progression for the intro, they find a suitable preset in Lennar Digital Sylenth1. In this case, the **ARP Doves** patch is the starting point for the sound, which is a blippy number with a short filter envelope.

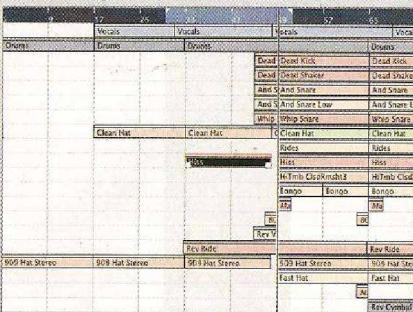
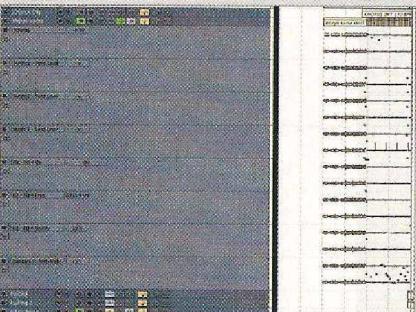
3 > The filter **Cutoff** of this part is automated to gradually open up over 16-bar section. To bring out the sound, EQ is used to boost the 1700Hz region, and a side-chain compressor with an input from the kick drum channel is added to duck the sound out when the kick plays later in the track



4 > The GForce Oddity provides the bassline that kicks in at bar 32. This is a simple patch based on the **BobsBass** preset, and to get the perfect sound the filter **Cutoff** and amp envelope are tweaked. Additionally, the ring modulation is turned up to full to give the sound a bit more bite.

5 > To create some background tension, a small section of the vocal is cut from the acapella and looped on an audio track. Auto-pan is used to move this sound around the stereo field, and a delay effect is also applied. The pair will frequently use stereo effects, such as these, to stop everything sitting in the centre of the mix.

6 > The vocal is pitched up two semitones using Cubase's timesretching capabilities, and automation brings up the volume level of the looped vocal. "A lot of these little 'extra' sounds will be faded in to help the track build almost subliminally", reveals Jamie.

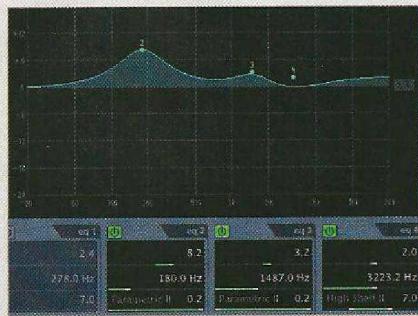
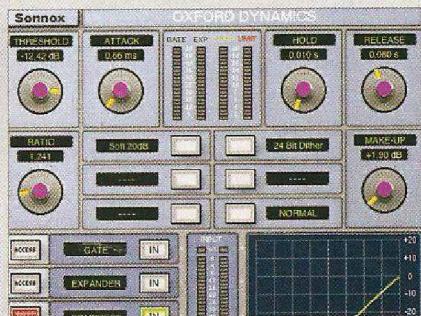


7 > The last word of the vocal in the intro is run through a feedback delay to help segue to the next section of the track. Cubase's built-in EQ is automated to gradually filter out the high parts of the delayed vocal. Simultaneously, the reverb and delay send levels are brought up.

8 > During the intro, various drum sounds gradually come into the mix and increase the intensity of the track. These include a couple of hi-hat sounds, and a sound that includes both white noise and tom elements. "These all add to the build-up of the track without getting too full-on", explains Brendan.

9 > Many of the tracks are routed via a send to the PSP 84 delay plug-in. To create a big crescendo before the drop, the feedback level of this effect is increased with automation. "We'll use that in a lot of stuff, and sometimes we'll let it carry on over the drop, but in this case, we've immediately automated it back down, because we wanted everything else to cut out before the drum fill", says Jamie.

> Step by step Producing a big beat



1 > On *Falling*, the pair use just a single kick drum sample. "The kick we've used in this track is not the typical kick you'd use in a DnB tune; we actually sampled it from a house record, and it's got quite a lot of bottom end, more than you'd normally use", explains Jamie. This is then run through the Sonnox Oxford Dynamics plug-in to add a little warmth.

2 > The main snare sound has been EQed to add 8dB at 180Hz. "That's quite a severe EQ for us, because we're not EQ junkies!" begins Jamie. "We kind of go for a natural sound: the samples that we use have to be good in the first place", explains Brendan. Jamie agrees: "That is 100% the key to drums and everything!"

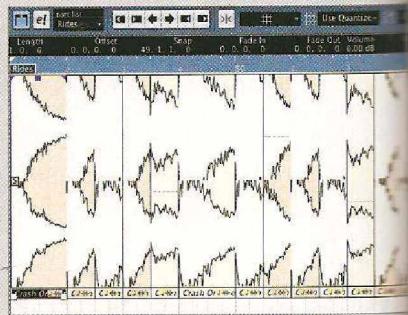
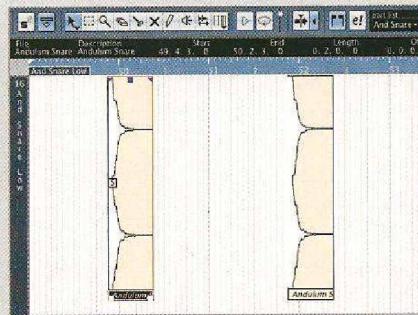
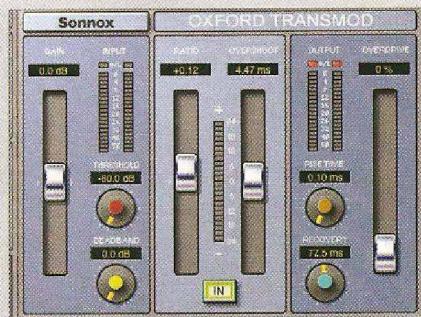
POWER TIP

> The equaliser

When it comes to using EQ, you shouldn't let your preconceptions get in the way of getting a good sound, as Jamie advises:

"Some people get it into their minds that you've got to EQ a certain frequency on a kick and a certain frequency on a snare, but what you've got to remember is that a particular snare might already have that... it might even have too much of it."

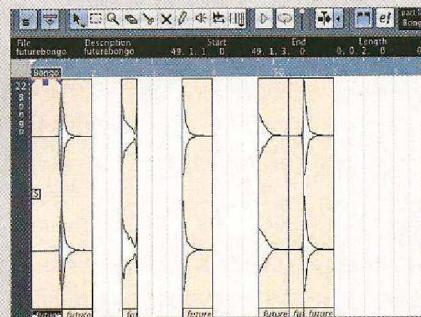
Brendan concurs: "There's no rulebook that you have to stick to."



3 > The Sonnox Oxford Transmod is also applied to the snare. "This adds a little bit of extra attack. I don't know why they've made the interface like they have, because you rarely need to turn the **Ratio** fader up above **+0.1**". The Sonnox Oxford Dynamics plug-in is also used with the Warmth section active.

4 > To create another snare sound, the original snare is pitched down an octave using Cubase's pitchshifter. This plays after the main snare occasionally to add a bit of a groove and sonic interest to the beat.

5 > A crash cymbal sample is used like a ride to play the whole way through the beat, filling up the frequency range with a lot of noise. This is also sidechain compressed so that its volume level drops down whenever the main drum sounds play. This track is then widened using Cubase's Stereo Enhancer.



6 > As well as the various hi-hat and white noise-esque sounds that were used in the intro, the drum mix is rounded off with some tasty bongo action. The sounds for this are taken from an E-MU sample library, and to make them fit with the beat, they're chopped up and rearranged on an audio track.

7 > To get their big, bad sound, Matrix & Futurebound make good use of buses. The huge kick and snare sounds will get routed straight to the drum bus, but the hi-hats and other sounds are routed to another group first, where they're widened. A send for the main group goes to a channel with D16 Group's Devastator plug-in on it, which is used to warm up the sound with some high-end distortion.

POWER TIP

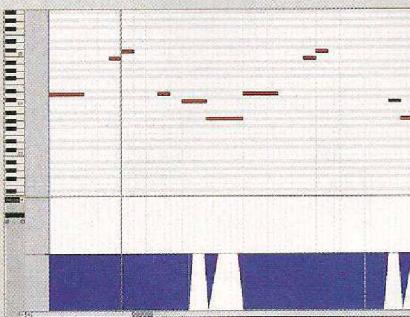
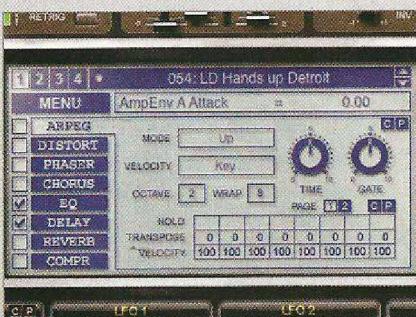
> Level headed

Brendan has some good advice on the use of plug-in effects:

"It's important when you use plug-ins to remember that, when you put some of them on, they instantly boost the level of the track, so it's always important to turn the volume back down to where it was originally. Some people will put these plug-ins on and, because it boosts the signal, they think, 'Ah, great, that's sounding amazing'."

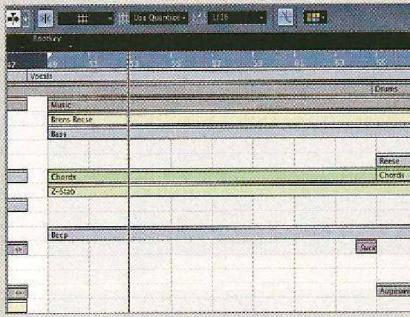
"But if that's all you're doing, you may as well just turn it up," Jamie adds.

> Step by step Building bendy basslines



1 > To create the bass sound for their remix of *Falling*, Matrix & Futurebound start out with the **Hands up Detroit** lead preset from Sylenth1. This has been tweaked, so that when it's played as a bass there aren't any oscillators playing so low as to be practically inaudible.

2 > This patch is layered with another bass sound from Kontakt. This is a big synth sample fed through Kontakt's Pro-53 filter. The filter cutoff is modulated by an LFO, and the pitchbend range is set to an octave. The MIDI for the part uses a fair amount of pitchbending to create a more interesting, fluid sounding riff.



3 > To warm up the Kontakt bass, Cubase's DaTube saturation plug-in is applied as an insert effect. Both bass sounds are then routed to a sub group where EQ is applied. This boosts the low-end, but that takes out the very lowest frequencies generated by the unusually subby kick.

4 > These two low-end sounds dominate proceedings for the first 16 bars after the drop, before a subtle high-passed bass stab is added to the mix, giving more definition to the overall bass. A beep and another stab sample from a Korg Z1 are also added as the track progresses further.

Are all EQs created equal?

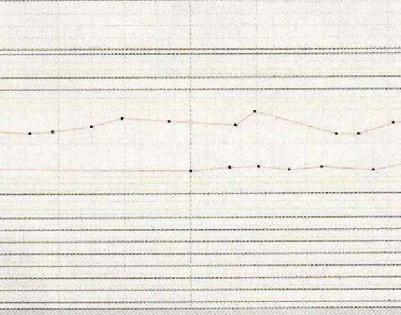
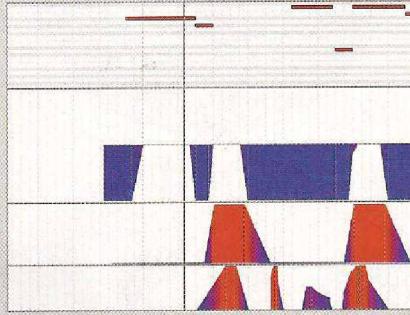
When it comes to expensive EQ plug-ins, Jamie's a bit of a cynic...

"Personally, I've never been that fussed about which EQ I'm using - I've never really got it when people say, 'Oh, I love a certain EQ for hi-hats, and this other one for vocals'. I actually came across an article online claiming that pretty much all digital parametric EQs are the same. It went into it to see if you could get two different EQ plug-ins to phase cancel, and found that basically it was possible! I thought it was quite interesting, so I did a bit of experimenting myself."

On the cm DVD, in the **Tutorial Files/Producer Masterclass** folder, you'll find four versions of the same beat EQed with Cubase's channel EQ and Studio EQ, Sonnox Oxford EQ and Sonalksis SV-517Mk II. The frequency and gain settings for each one are identical, and Jamie's adjusted the Q controls of each until maximum cancellation is achieved. Try loading them into your DAW, and play two of the loops back together with the phase of one inverted. You'll see how in most cases the phase cancellation is in the -75 to -65dB range.

Jamie is unconvinced by the supposed differences between these EQs. "Some people might say that microscopic difference is the magic, but to my ears there's no difference between the EQs whatsoever. For my money, I'm happy to use the Cubase EQ!"

> Step by step Rinsing a Reese motif



1 > Among Matrix & Futurebound's hallmarks are the big wobbly Reese riffs that punctuate their tracks. This uses the same bass sample as the main bassline, but with a different Kontakt patch and more processing - the sound is run through Cubase's Amp Sim and Tonic filter, and Camel Audio's CamelPhat 3.

2 > To create the twisting, turning Reese riff, Kontakt's filter Cutoff is modulated via MIDI CC, and another MIDI CC is assigned to control the LFO-to-Cutoff depth. These, along with the octave pitchbend, are used to create all kinds of swells and wobbles, providing a very dynamic sound indeed.

3 > The Cutoff levels of the Tonic and CamelPhat 3 are modulated, too. These complex layers of filter cutoff modulation help create a very organic feel. "You have to spend a lot of time on these little things to get them sounding exactly how you want them to", says Brendan.



The cm guide to Logic 9

Master the new features in the latest version of Apple's flagship DAW, from Flex Time and Drum Replacer to Space Designer's new Warped IRs

> Logic Pro 9 offers such a wide range of new goodies that last month's review simply couldn't cover them all. From game-changing headliners to minor-but-cool tweaks and refinements, v9 is a serious step forward for Apple's amazing DAW. Over the next five pages, we'll offer some insight into what Logic Pro 9 users might choose to do with their new tools.

If you're a producer or mix engineer, you'll no doubt want to explore Flex Mode and see how Apple have chosen to implement their version of 'elastic audio' editing. If you're a Logic-using drummer, you're probably interested to find out about the Beat Replacement tools. And if you're a technology geek (feel no shame, you're in

good company!), you'll probably just want to see if Logic can walk the walk, especially given the bold proclamations Apple have made about the program's new capabilities.

The first thing that struck us about Logic 9 was its usability. While much of the new technology offered here tends to echo the features of other DAWs, the speed at which your editing decisions can become reality is extremely impressive, no matter how radical they may be. For example, you can completely overhaul a piece of audio (or even an entire track) in a matter of minutes, sharpen the timing of multiple audio tracks with just a few clicks, or applying the groove of one audio file to another in a couple of easy steps.

What's really interesting about the tools on offer is that, while they can be applied correctively, to fix problem audio, they can also be used to create something really unusual and interesting from very humble origins. It's a breeze to take a seemingly inappropriate audio file from the depths of your disk, throw it into a project and chop it to fit at lightning speeds.

Logic Pro 9 is a truly multi-faceted beast - not only does it continue to do a great job of helping you build, record, arrange and mix tracks, but it can now also be used much more as a musical sketchpad, for trying out anything from safe, middle-of-the-road ideas, to truly crazy, off-the-wall experimentation. So without further ado, let's get down to details...



Making glitchy beats with Flex Time

Flex Time is Logic's powerful new 'elastic audio' engine, which analyses audio files with a view to manipulating them in a number of ways, depending on which algorithm is chosen. For example, the **Monophonic** option is the one to go for if you've got slight timing errors in a single vocal line, or for creatively mangling things with time-stretching or phrase adaptation. In addition, there are also algorithms designed specifically for beat modification - we're going to be looking at **Slicing** in the walkthrough below.

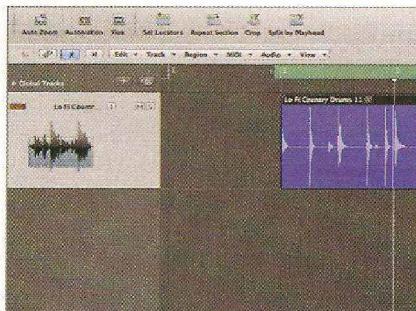
Once again, the best thing about Logic's implementation of these

time-stretching tools (which Live, Cubase, Sonar and Pro Tools users have had in various forms for some time) is how quickly and creatively they work. Not only can you fix sections that might be misbehaving, such as quantising audio tracks just as you would with MIDI, but you now have the option to transform an audio file from one musical context to another with ease. This is made eminently possible via Apple's inclusion of less conventional algorithms for Flex Time editing, the first of which, **Speed**, enables you to pretend that your edits have been made using old-school Varispeed controls,

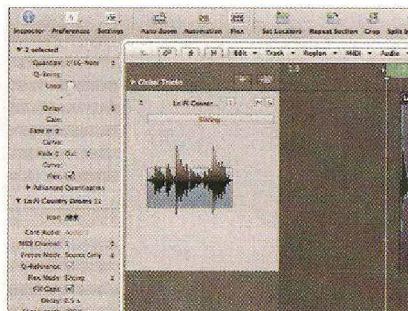
producing wild variations in pitch as slices move to form elongated sections (becoming slower and lower in pitch) or shortened versions (faster and higher).

We're going to look at the Flex Time algorithm **Tempophone** (in addition to **Slicing**). This enables us to employ a technique not unlike granular synthesis, in order to fracture and warp audio slices, with all of the inherent glitchy implications that you can imagine included. In fact, almost regardless of which audio file you start out with, some very interesting things can begin to happen with this kind of manipulation...

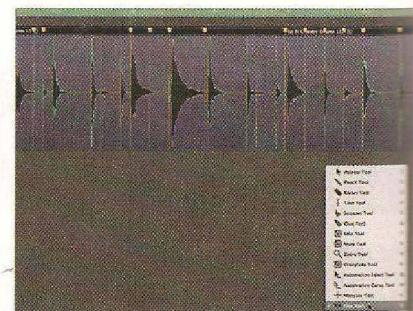
> Step by step Converting country to glitch



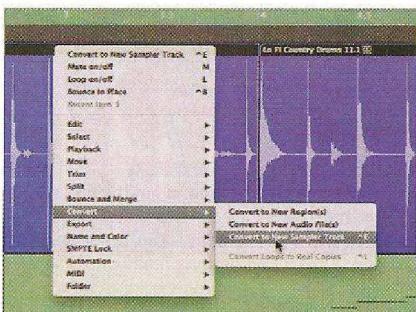
1 > We begin by importing a simple country-style drum loop from Logic's loop browser. There are three things about this loop that interest us: firstly, it's in a style that we're keen to warp; secondly, it's simple enough to make transient detection quite straightforward; and thirdly, it's very cheesy! (Audio: **Import Loop**)



2 > First, we hit the **Flex** button for the track and choose **Slicing**, which enables Logic's automatic transient detection and divides the loop accordingly. Once the loop has been sliced at its transient points, we select **1/16** in the **Quantise** menu, which instantly adjusts our loop's timing into something much more rigid. (Audio: **Flex Slice**)



3 > We now switch the Flex mode over to **Tempophone**, which adds a really cool grainy quality to the sound. Our tone is enhanced to taste by modifying the **Grain Size**, so that whenever we drag parts of the audio file into new positions using the Flex tool, the audio glitches up nicely. With this in mind, select the Flex tool and drag the slices around to create a new pattern. (Audio: **Tempophone Glitch**)



4 > To get real control over our sound, we can convert the whole loop into a MIDI-triggered instrument with Logic 9's right-click **Convert to New Sampler Track** option, which detects transients and converts them into individual regions in an EXS24 instrument, complete with a MIDI file to trigger the slices in the same order and with the same timing as the original audio. (Audio: **Sampler Glitch**)



5 > Now to edit the sampler instrument itself, so that some slices are reversed. To do this, open the EXS24 instrument editor and check the **Reverse** boxes next to the slices to be reversed. Next, assign LFO 2 to the filter **Cutoff**, synced to project tempo, and select the random waveshape. Lastly, we dial in some pitch variation via the **Pitcher** and **Glide** controls. (Audio: **Sampler Edit**)



6 > To re-align any bits that have gone astray, we re-quantise the MIDI file to 1/16 notes. For added interest, we set up Logic's new PedalBoard plug-in and drag in **Phase Tripper**, **Roswell Ringer**, **Grinder** and **Delay**, the effect of which we reverse. All the stompboxes are in sync, and we automate the Ringer's **Frequency** dial to get the sound moving. (Audio: **PedalBoard Effects**)



Shaping vocal performances with Flex Time

One of the most powerful uses of the Flex Time system is manipulating vocal performances. The **Monophonic** algorithm is ideally suited to this particular task, as it produces a series of Flex markers around each detected phrase, which can then be further adjusted, moved, deleted or added to using the Flex tool.

As you move a marker around, the waveform display updates to show the lengthened phrases in orange, and those that are shortened as a consequence in green. A warning box will appear if you're about to produce an outrageous edit (if you, say, try to extend a quarter note across four

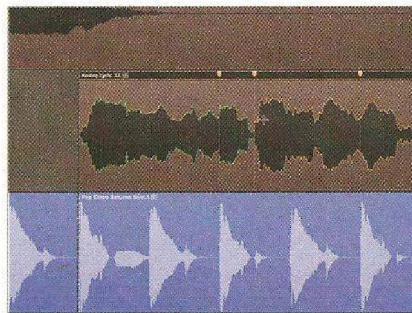
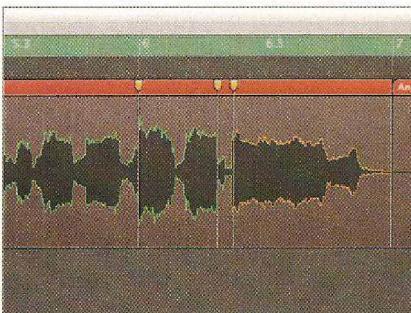
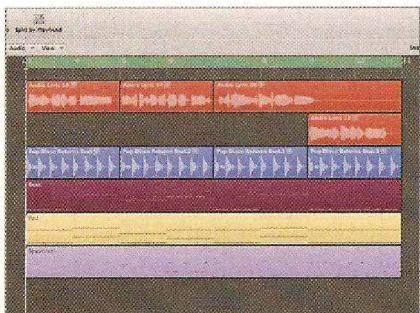
bars). However, you can dismiss warnings like this and go ahead anyway, if you like – a level of temporal freedom that makes Flex Time editing a much more powerful proposition than Logic's previous time-stretching system and algorithms.

In addition, Flex Time is going to prove hugely powerful for producers who favour less dramatic adjustments, as the tools can be used to lightly nudge any notes that are late, early, too long or too short into place. It also enables you to put in place a more syncopated phrase than the 'strict' one your vocalist has performed, for example. The 'new way' will no

doubt also be extremely useful for remixers, who can now drop, edit and accommodate acappellas over brand new backing tracks with much less effort than was previously required in earlier incarnations of Logic.

Another really great thing about Flex Time is that simply exiting Flex View drops you back out to the 'regular' audio clip, which can then be chopped, moved and processed as usual. Thus, Flex Time, in combination with Logic's other, established editing options, makes for a superb range of tools with which to edit vocals or anything else you care to throw into the mix.

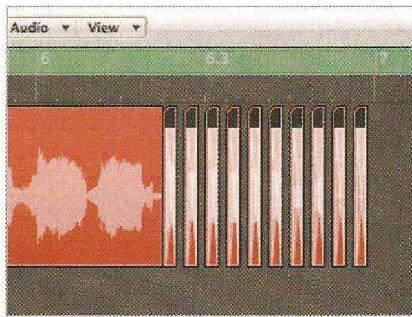
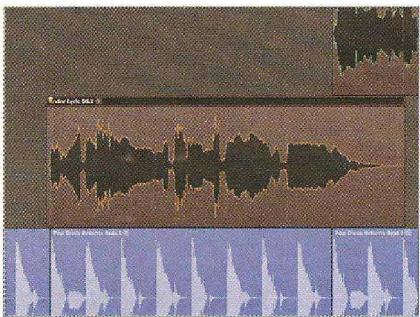
Step by step Flex Time vocal editing



1 To get started, we record a little track to demonstrate the power of Flex's vocal editing capabilities. We include four phrases borrowed from Apple's Voices Jam Pack, as well as a drum loop, MIDI programmed bassline and other sequenced parts. (Audio on the disc: **Vocal Editing Mix Start**)

2 Time to dive into Flex mode, where we select the **Monophonic** analysis algorithm for our first lead vocal part on Track 1. This places markers all over the audio file, so that we can manipulate the vocal phrasing as we see fit. In bar 6, for example, we bring the last note back, so that it arrives halfway through beat 2, rather than directly on beat 3. (Audio: **Vocal Phrase Edit 1**)

3 The final phrase sits a little uncomfortably for our liking, as it seems to start a little late and finish a little early. We rectify this by using the Flex tool to drag the position of the first note back, thus adjusting the whole phrase, then stretching out the duration of the last note, increasing its sustain. (Audio: **Vocal Phrase Edit 2**)



4 We want to warp the sound of the third phrase a little more, so we drag it onto its own track, for which we select the **Tempophone** Flex algorithm. Then we drag the first note back to the beginning of the bar, so that the whole phrase is slightly 'Flexed'. This brings the granular quality of Tempophone to the fore, giving our phrase a very outlandish tone. (Audio: **Vocal Phrase Edit 3**)

5 With our Flex edits in place, it's time to capitalise on a couple of them with some effects treatments. On the Tempophone-adapted phrase, we enhance its lo-fi nature with telephone EQ, compression and delay plug-ins, which sound great, particularly when panned a little over to one side. (Audio: **Effect Vocal 1**)

6 Lastly, we use our freshly elongated last note to create a gate-like effect. By exiting Flex View, our regions go back to their regular editable state, enabling us to divide this last note and chop it up into little pieces. We do the same thing with the final note of the second vocal phrase, too. (Audio: **Flex Vocal Final Mix**)



Drum Replacer

While DAWs continue to become more powerful, offering an increasingly wide range of tools at very reasonable prices, it could easily be the case that your actual studio environment now lags behind some of your chosen program's capabilities, through no real fault of your own.

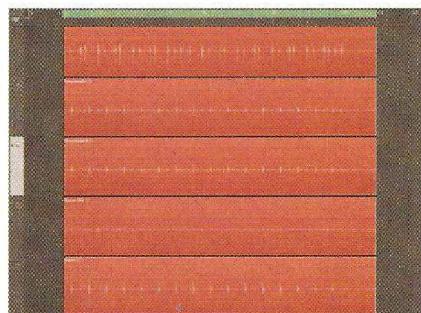
A good example of this rears its head when you're thinking about making drum kit recordings. In Logic, you have a program that can receive simultaneous audio feeds from a variety of microphones. But do you have a good-sounding room, a collection of microphones capable of doing the job and a

sticksman whose timing and feel is proficient? For many of us, the answer to these questions is no, forcing us to find other ways to generate drum sounds.

However, Logic's new Drum Replacer tool means that not having access to a great sounding drum recording environment is now considerably less of a showstopper. It enables you to, well, replace or double sounds in any recorded drum parts, no matter how sonically ropey they might be. The detection of the sound to be replaced is done via a frequency-based algorithm and user-definable volume threshold:

you simply specify the type of drum to be replaced (kick, snare, etc) from a menu, set the threshold and choose the replacement/doubling sound itself in the Media browser. This can be any sample you like, although you want to check out Logic Pro 9's built-in library of individual kick, snare and tom sounds, which open automatically when the Drum Replacer dialog is invoked. The software then creates a MIDI part containing the hits to be replaced/doubled on a track directly below the original audio, and an EXS24 sampler loaded with the replacement sample. Easy!

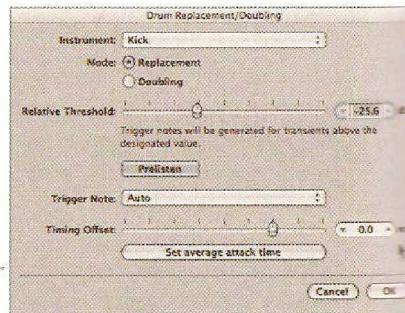
> Step by step Using Beat Replacement/Doubling



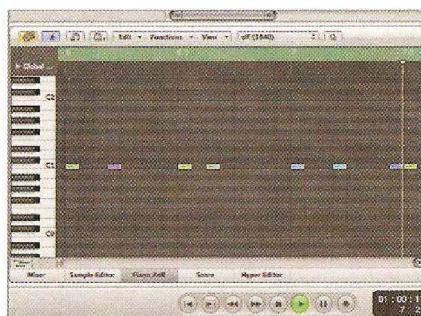
1 > In order to use Logic Pro 9's Beat Replacement tools, you need audio files – ideally a multitrack session, in which each drum is recorded as an individual file. In our session, we've used five mics to give us separate tracks for kick, snare, room and stereo overheads. (Audio on the disc: **Import Drums**)



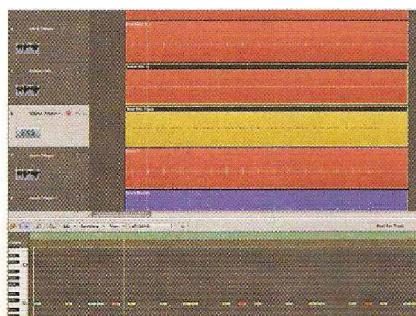
2 > Let's double the snare part. To do this, select the snare channel, making sure that its audio region is highlighted, then choose **Track>Drum Replacement/Doubling**. This launches a window where you can adjust the **Relative Threshold** for analysis and the **Instrument** type for doubling/replacing. We pick a snare from the Media browser and select **Prelisten** to hear how it sits. (Audio: **Snare Double**)



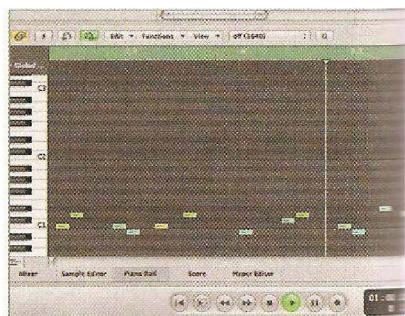
3 > Our snare is now doubled nicely, but the kick needs replacing entirely. We repeat step 2 on the kick channel, selecting **Replacement Mode** this time with **Kick** as the **Instrument** type. Again, we pick a sample that works in context with our other sounds and commit to it once we're happy. (Audio: **Kick Replace**)



4 > Our sample choice is dynamically inconsistent, because each transient has been matched to a sound from a multisampled set of EXS24 kicks. This means the contrast between loud and soft is overly accentuated. It's no bother, though, as we can narrow the dynamic range with Logic's **Dynamics** MIDI parameter and adjust individual velocities in the Piano Roll editor. (Audio: **Kick Edit**)



5 > There's nothing to stop us using this technology for more esoteric purposes, too, so let's get a little more experimental. First, we analyse the room mic signal and pull the **Relative Threshold** right down, so that every single transient falls within the analysed range. Then we map this to the EXS24's preset **Human Beat Box** kit. (Audio: **Room Mic to Beat Box**)



6 > Lastly, we decide to make this Beat Box track much more interesting by spreading the MIDI notes out to trigger a wider range of sounds. Lastly, we send this part to a stereo delay and turn it down in volume, so that it fits more comfortably with our loop's other elements. (Audio: **Kit with Beat Box Final**)

Space Designer Warped IRs

One of the more surprising updates provided by the new Logic Studio, along with the benefits for Logic Pro 9 and Mainstage 2 users, are the 450 Warped Impulse Responses added to Space Designer. For those unfamiliar, Space Designer is Logic's own convolution reverb, which, like all 'verbs' of this type, enables the ambient sound of any real-world acoustic space to be applied to any signal fed its way.

In the past, Logic's Impulse Responses have focused on providing high quality but 'traditional' reverb spaces, including a wide selection of chambers, rooms and halls. Now,

though, Space Designer features a whole collection of 'warping' IRs, including pitched chords, sound effects, analogue signal recreations and sampled transistor radio speakers, to name but a few of the signal shapes on offer. Many of these new effects are tempo-linked, meaning that rhythmical patterns have been created at specific tempi that will only fit your track if it's running at the same speed - Flex Time editing doesn't yet apply to Impulse Responses... Logic Pro 10, perhaps?

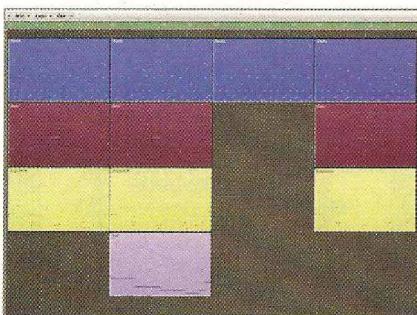
All of this means that it's now possible to utterly transform any instrument or audio track with Space Designer. It's up to you if you

want to add this processing as an extra layer via an auxiliary Send effect (as you probably would with a traditional reverb), or whether to run Space Designer as an Insert effect, thereby transporting the entire signal to an entirely different musical place.

So now Logic users have an exciting sound design tool to apply to sounds at will, enabling you to find out if your work would benefit from a more left-field treatment without having to go to a third-party plug-in. In the walkthrough below, we'll show how a fairly bland track can benefit from a range of treatments provided by these new IRs. **cm**



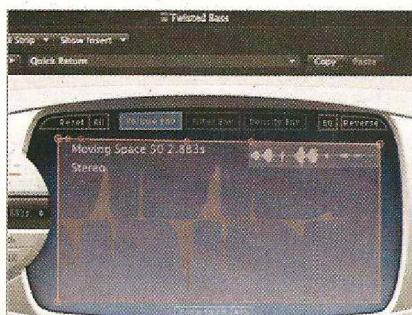
> Step by step | Taking a track to the dark side



1 We've written a short track to demonstrate the warping capabilities of Space Designer. It only consists of four parts - beats, bass, sequence and pad - but it provides plenty of opportunities for us to put the new Warped Impulse Responses through their paces. Check out the sound of the mix before processing. (Audio on the disc: **SD Warp premix**)



2 We route our beats to an auxiliary send, with the first of our warped IRs set up: it's called **Drum Transformer** and it provides a 'chord shadow' underneath the beats. It's in the wrong key, though, so we've inserted a Pitch Shifter after it and tuned it up by a semitone, then down **18 Cents**. On the DVD, the first half's dry, then the Space Designer treatment arrives. (Audio: **Beats with chord IR**)



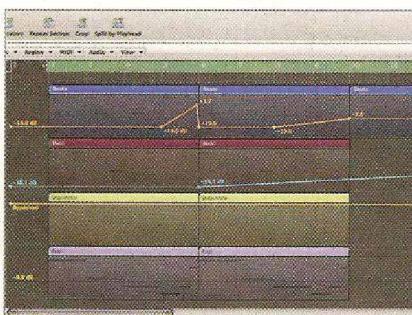
3 Normally you wouldn't want to add too much reverb to a bass part, but with the advent of Space Designer's new IRs, this plug-in is no longer simply a reverb. Here we're using the **Twisted Bass** IR, which enhances the part nicely without producing the usual bass reverb 'soup'. Again, our audio example is dry for the first half, before the warped IR kicks in. (Audio: **Twisted Bass**)



4 Here we've inserted the **Fixed Vintage Phaser** IR into the channel strip of our sequence sound, which transforms its tone into something much more minimal. Note that there are other IRs with 'filter' settings, as well as some classic analogue treatments. (Audio: **Phaser Sequence**)



5 Looking to comprehensively change the sound of the pad, we set up Space Designer as an insert and load a **Transistor Radio Simulation** - this nicely thins the sound out and stops it from coming across as quite so dated. Effectively, Space Designer has just become both an EQ and a filter section! (Audio: **Transistor Pad**)



6 Using automation, we can shape the mix further using IRs. On the disc you can hear that our sequence's character changes after the drop, while the drums and bass send varying amounts of their signals to their respective auxiliaries. The mix is now much more dynamic and has a whole layer of sound design bubbling away nicely under the surface. (Audio: **Warped IRs final mix**)

Logic Pro 9's other highlights

HEY, GOOD LOOKING

Graphically, Logic Pro 9 looks much the same as its predecessor, but there are some subtle GUI changes in there. For starters, the microscopic response curves of EQs in the Mixer window and the Inspector now light up in a fluorescent green when activated, meaning that the rough shape of a sound can be seen much more clearly. Similarly, larger, clearer fonts have been applied to instruments like EXS24 and Space Designer – all good news for those of us who spend too much of their lives staring at this program!

VOX POPS

Additional content is available via the Loop Browser in the form of the previously 'purchase separately' Jam Pack: Voices. You might be sniffy about drag-and-drop vocal phrases, but now that Flex is here, this content might be fair game for warping into new phrases and shapes.

BOUNCING ON THE SPOT

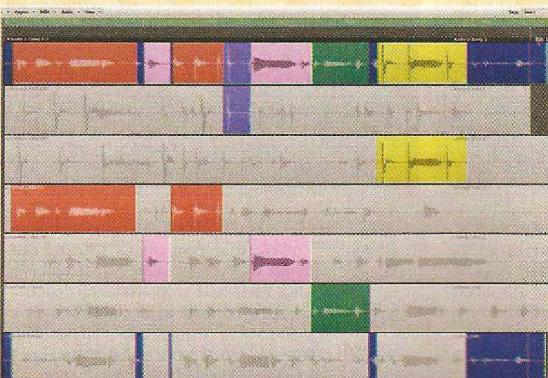
If you've got an audio file or instrument that you want to bounce down to a new file, the new Bounce In Place function is for you. Select this with a region highlighted and a dialog box will pop up. Here, you can choose whether to include effects (including reverb tails, etc) and automation in the bounce. The result is produced on a new track, ready for your next edit.

A DIFFERENT TAKE

If Logic is your primary DAW for recording audio, you'll already know all about Take Folders and Quick Swipe Comping. However, you'll also be aware that if you want to move regions or 'print' your edits, it's necessary to flatten a comp before going ahead. Well, not any more. Logic 9 has expanded its take editing, so that you can temporarily switch off Comping in favour of having your editing tools available for the comp instead, including Flex Time. When you've done all of your editing, simply toggle back to Quick Swipe mode and carry on.

NOTE TO SELF

You can add notes to individual tracks, projects and even mixer strips in Logic Pro 9.



The process of compiling vocal takes has never been better for Logic producers, especially now that you can bring the editing tools to the party



The brand new Amp Designer and PedalBoard plug-ins are a dream come true for axe-wielding Logicians

No longer do you have to scribble ideas and to-do lists down on paper – you've now got a built-in notepad that you can access via the Media Browser for recording thoughts and ideas – invaluable for lyrics and general notes when inspiration strikes.

HAVE A TAB

OK, so this might not be for everyone, but if you use Logic to convert your compositions into scores (which you might well do if you're a media composer or music student), you'll be pleased to hear that, along with the other guitar friendly Logic 9 modifications, a library of some 4,000 tabbed chords and guitar-related symbols are now available.

PROJECTILES

You can import any track from another project on your hard drive within Logic 9 simply by pointing to it in the Media Browser and double-clicking it. Rather than this booting the other song, the track contents become visible (via individual track names), enabling you to grab channels containing either instruments or audio files, complete with their inserts, auxiliaries, automation and even I/O routings, should you want them. Click Add and a new track is set up in your current project with the relevant part, and all without you having to leave your current track in progress.

IF IT AIN'T GOT THAT GROOVE... WELL, JUST STEAL IT

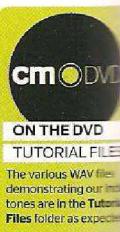
Once you've sliced and diced rhythmic audio files, you can make a Quantise template and apply it to other audio tracks in your project. So if your drummer has groove but your rhythm guitarist has a hangover, you can fix his erroneous performance at the click of a button. This has always been possible with MIDI files, but now this great tool is just as applicable to audio.

HOW DID THEY DO THAT?

Logic's 'extra' Demo Content DVD contains three multitrack projects from luminary artists. *Spaceman* by The Killers, *You'll Find A Way* by Santigold and *The Fear* by Lily Allen are all yours to open, peruse and learn from, before trying out your own ideas. It's a bold step from these artists to offer 'warts and all' access to their multitracks, but it's hugely insightful material for students, beginners and interested pros alike.

STOMPING GROUND

Amp Designer and PedalBoard are the two new plug-ins that Apple have designed specifically with guitarists in mind. Amp Designer behaves like third-party plug-ins such as NI's Guitar Rig, to simulate the sound of particular amps and cabs, with the added bonus of being able to decide on the microphone type and position that you use to 'capture the sound'. PedalBoard enables the chaining of stompboxes from a library of 30 units. Both plug-ins are available to Mainstage 2 and Logic 9 users, and of course you can use them on more than guitar parts.



Indie tones

From the 80s Manchester scene, through 90s Britpop and beyond, indie bands have always come up with great guitar sounds.

Here's how they do it...

> With so much attention focused on the virtuosic axe heroes found in rock and metal, it can be easy to overlook the great tones and guitar playing found in the indie genre. Total Guitar Editor, Steve Lawson, believes that, "From Arctic Monkeys to Vampire Weekend, there are loads of great indie guitar bands around at the moment."

Indie guitar playing is based on song arrangement and vocal support - especially now that synths and electronic sounds have extended the traditional guitar, bass and drums setup. Bloc Party are just one example of a band that have incorporated a more synth-dominated style on their latest release, *Intimacy*.

That's not to say that the guitar always takes a back seat - the Arctic Monkeys' biggest hits are driven by frenetic six-string riffs. Elsewhere Vampire Weekend have integrated African influences into their sound, particularly the guitar licks, to give them a unique sound.

One of the most interesting aspects of indie guitar is the orchestration of multiple parts. Not only are these generally arranged very well, but the sounds are crafted for maximum contrast - a common trick is to split a single part between two guitars (one playing much higher content than the other). For this, the tones are different yet complimentary, and they're most often panned hard left and right for separation.

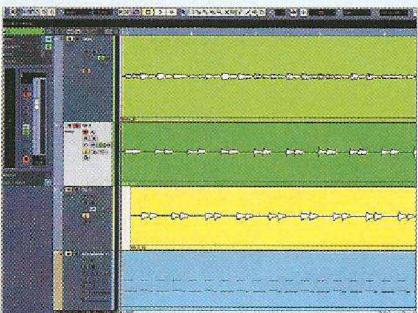
The Arctic Monkeys, masters of the twin guitar arrangement, often back up heavier riffs with a second guitar, which makes clever use of clean, chord-based rhythms. We'll be looking at that technique here, along with a whole host of other classic and modern indie tones. cm

> Step by step
Classic Britpop tones

1 > We first record a track inspired by the 'wall of distortion' tones found on early Oasis tracks. With the amount of overdrive we use for this, it's particularly important to control the bottom-end, so we roll off everything below 80Hz.

2 > With our guitar track in the can and the low end sorted, we call upon AmpliTube 2's **British Tube Lead 1** amp and default cab. The **Gain** is jacked up to **8**, so that our sound is very distorted, but not too mushy. We boost the **Treble** and **Presence** to add some extra bite, too.

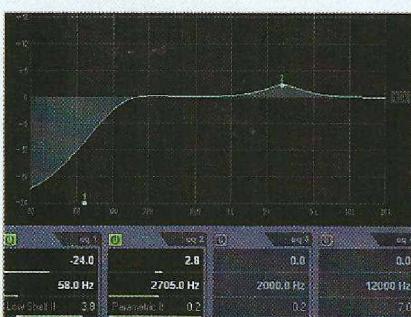
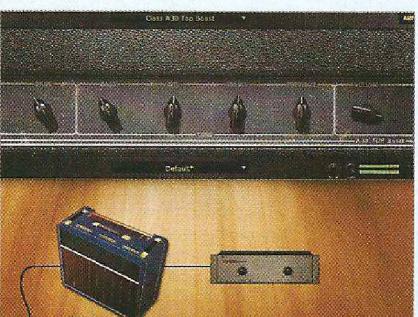
3 > The final stage is to add some warmth with PSP's appropriately named **VintageWarmer2**. Even with the controls flat, it does a great job, but we still apply a 4dB cut at 100Hz to further tighten the bottom-end. We also boost the 2.5kHz area to enhance and crisp up the top end, which is a requirement of this classic tone.

> Step by step
Basic twin guitar tones

1 > We record two separate guitar parts - one playing two low power chord hits on the first and third beats of each bar, and the other playing two high notes on the second and fourth beats. The first part uses the neck position pickup for a warm, rounded tone, while the second employs the bridge pickup to give a more biting, top-heavy sound.

2 > We decide to go treat the lower part with Pod Farm's **CITRUS** amp, with the **Gain** adjusted to **4**. For EQ, we boost the **Bass** and **Middle** to **7**, then cut the **Presence** to **3**. This gives us a warm, clear sound that's barely distorting.

3 > To squeeze even more warmth out of this part, we apply a small boost at around the 350Hz mark. Be aware, however, that care should be taken when boosting guitar signals in this area, as it can sometimes make them sound a little boxy.

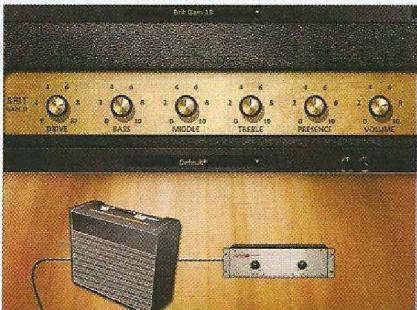


4 > For the higher of our two parts, we want a far brighter tone, so we call up Pod Farm's AC30 emulation, the **Class A30 Top Boost**. To shape the sound, we adjust the **Drive** and **Bass** to **4**. As this is quite a bright preset, we leave the **Treble** and **Presence** at their default settings.

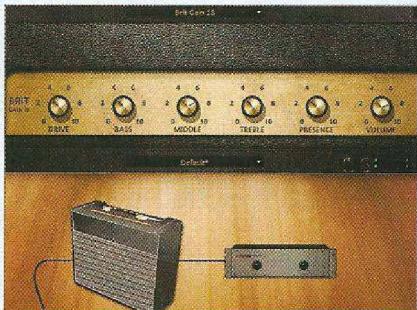
5 > Our sound is nearly there, but the upper mids could do with a little more bite. To achieve this, we apply a 3dB boost at 3kHz. Now we have an excellent contrast between our warm, low powerchords and the biting, higher-sounding stabs.

6 > The final part of this setup is to fully separate our parts in the mix, so that they have a space of their own. We pan one part hard left and the other hard right. Now the two distinct parts bounce across the stereo field as the chords are played. (Audio on the DVD: **Twin_Panned**)

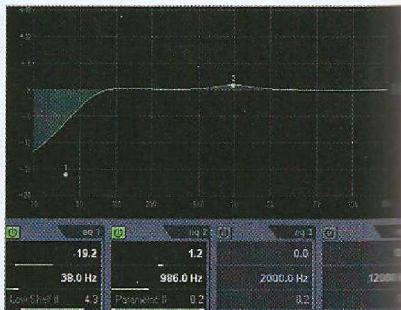
> Step by step Arctic Monkeys-style dual guitar



1 > We've made an Arctic Monkeys-style track featuring two guitar parts. One plays a single note riff, the other, high chord stabs. Let's deal with the riff first. We call up Line 6's Pod Farm and load the **Brit Gain 18** preset, with the **Drive** and **Volume** increased to **8** to push the virtual amp.



2 > Our riff needs to be punchy and cutting, enabling it to stand proud in the mix and provide the track with some drive, but we must also prevent it from sounding either too boomy or bright. To do this, we roll off the **Bass** to **4**, boost the **Middle** to **7** and drop both the **Treble** and **Presence** to **4**.



3 > Amp EQ units are all very well for setting up basic tones, but sometimes you need to get 'between the cracks' of the preset EQ curves. Using a separate plug-in, we apply a cut at 50Hz to lose the low-end rumble, then a small boost in the 1kHz region.

POWER TIP

>Monkeying around

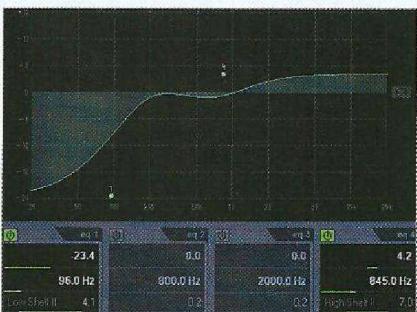
Emulating an artist's sound is about much more than just selecting the right amps and EQ settings. You must take into account just how the music is played, too. Whereas a metal band would meticulously record super-accurate parts for the ultimate tightness, the Arctic Monkeys rely on frenetic, aggressive riffs that constantly push the beat. Neither approach is better, but applying Alex Turner's guitar style to a metal track would be a disaster. It may seem obvious, but overlooking the attack and energy in the Monkeys' music will leave it sounding lifeless, regardless of which amp you use.



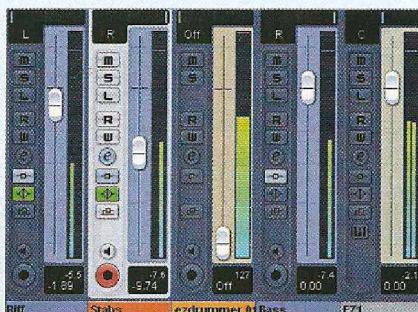
4 > Now it's time to turn our attention to the second of the two guitar parts. These high stabs are designed to contrast fairly heavily with the main riff. We need an aggressive clean tone, so we call upon Pod Farm's **Blackface Lux**, with the **Drive** at **10** and **Volume** at **9**. This pushes our clean sound, so that it's just breaking up.



5 > To get our very bright, clean sound out of this amp setup, we roll the **Bass** down to **3** - this leaves a cutting guitar part that contrasts nicely with our original riff. To highlight this further, we also boost the **Treble** and **Presence** to **7**.



6 > In the context of a full band mix, we aren't too worried about this part's contribution to the bottom-end of the track, so we apply a generous cut at 200Hz. This helps maintain clarity in the low end of the track. We then boost everything above 1.5kHz.



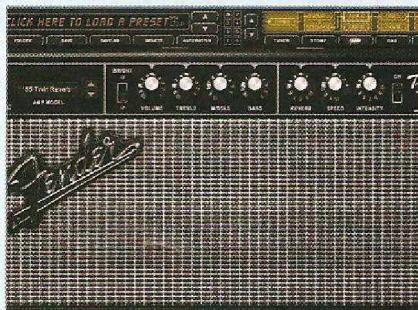
7 > For the finishing touch, we separate our parts out by panning the riff hard left and the chord stabs hard right. Once again, this means that our individual guitar sounds are constantly moving across the stereo spectrum. (Audio on the disc: **Arctic_Twin_Guitar**)

POWER TIP

>The right stuff

It's easy to find a live photo of an artist to see what amp they use, and it's logical to assume that all you need to do is load up the right amp simulation and you're ready to go. Unfortunately, it's not that simple: artists often use a range of amps in the studio, and even if they use their live rig in the studio, different rooms combined with various mic types and positions mean that you shouldn't get too hung up on trying to drag a sound out of the 'right' amp - experiment and trust your ears instead.

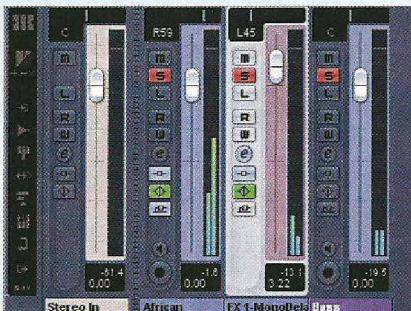
> Step by step | African-influenced indie



1 Vampire Weekend have successfully integrated African influences into their sound, so let's record a simple track along these lines, with a single guitar part. Our basic sound comes from AmpliTube Fender's **'65 Twin Reverb**, with the **Reverb** set to **2**. We normally avoid amp reverb, but our reasons for using it this time will soon become clear.

2 Once again, we're looking for a fairly bright sound here, so this time we roll off everything below 200Hz (removing any hint of bass). We apply boosts at 400Hz and 2kHz to bring out the lower- and upper-mids. This ensures that our sound is bright but not *too* thin.

3 Now to create a typical slapback effect. A **Delay** setting of **1/32** (ie, eight notes per beat) should do the trick. The delay's **Mix** should be **100%**. Our guitar signal needs to be sent to the FX channel, too, so we bring up the send level until it balances nicely with the dry signal.

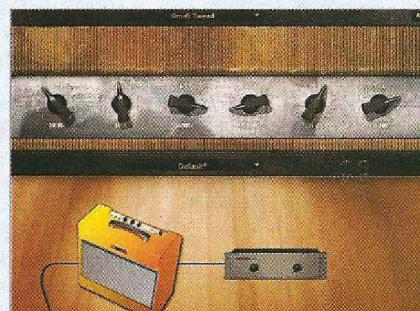


4 The key to the slapback sound, as we've covered before in *Guitar Lab*, is to get a single, super-fast repeat that lands close to the original sound. To achieve this, we turn the **Feedback** control on our delay unit down to **0**.

5 We want to create a unique sound here, so we pan the original signal to the right and the delayed signal to the left. This gives the illusion of the slapback echo suddenly shooting across the stereo panorama. You can hear a similar sound being used on the Vampire Weekend track *Cape Cod Kwassa Kwassa*.

6 Finally, we treat the delayed sound with a short hall reverb, courtesy of IK Multimedia's Classik Studio Reverb. We add this as an insert on the FX channel, with a **Mix** of **47%**, which ensures that our original tone isn't drowned out. It also means that the original signal has a different reverb to the delayed signal, making for a nice contrast. (Audio on the DVD: **African_Influence**)

> Step by step | Same part, different tones

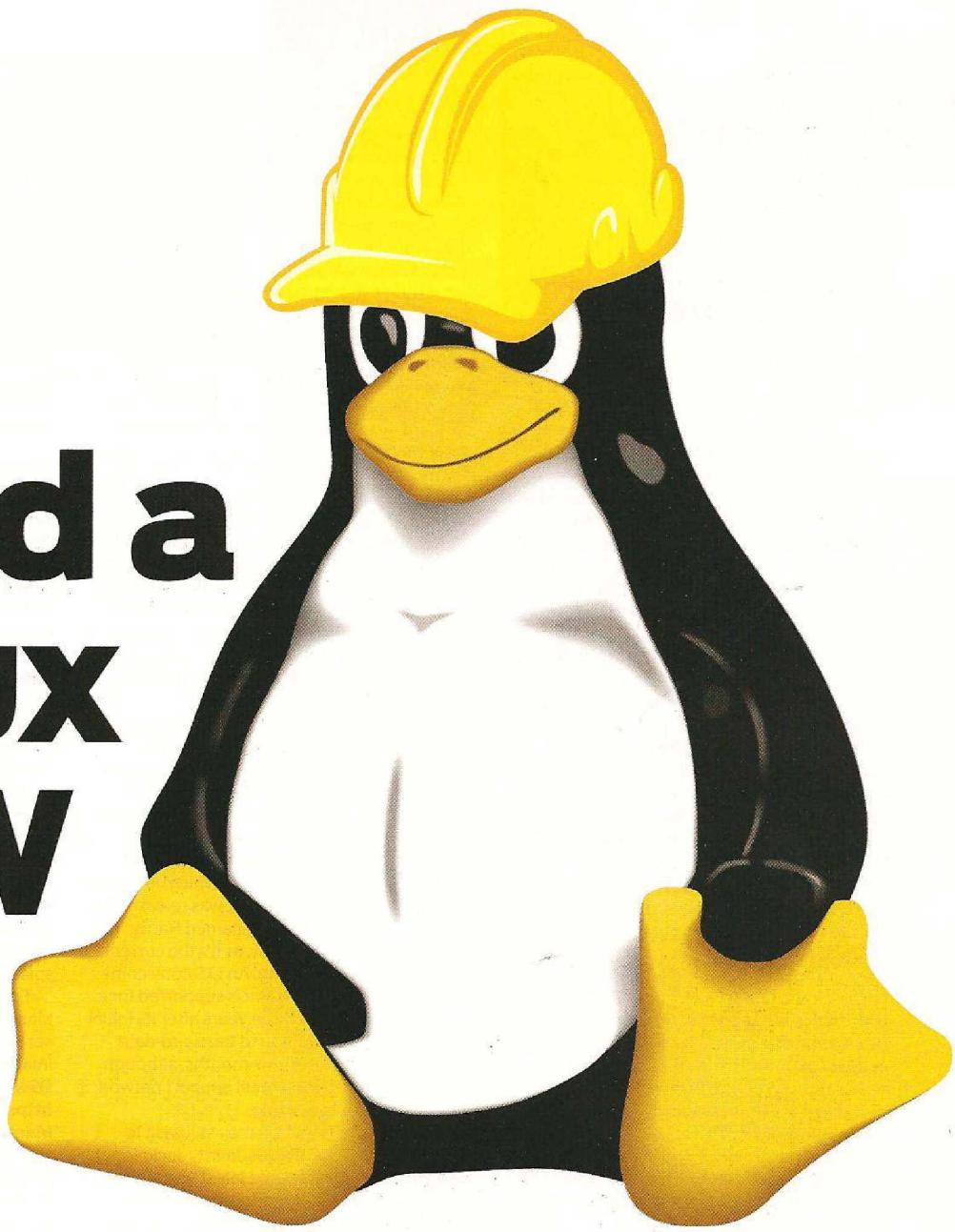


1 We record two identical guitar parts for this example, but we'll be using a different tone for each. We call up the **Citrus D-30** preset in Line 6's Pod Farm for the first part, then increase the **Gain** to **8**, and the **Bass**, **Middle** and **Treble** to **7**, before finally take the edge off by cutting the **Presence** to **2**.

2 Our second guitar plays the same part as the first, but we want to apply a different tone. The Citrus produces quite a thick, smooth sound, so we need to find something far harsher to compliment it. The **Small Tweed** amp, with a **Drive** setting of **4**, should do the trick.

3 To give this part even more bite, we jack the **Middle** up to **9** and boost the **Treble** to **7**. The last thing to do is balance the levels of each part to taste. Once this is done, our two drastically different tones combine to give a very full-bodied sound. (Audio: **Same_Part_Different_Tones**)

Build a Linux DAW



Fancy some new music software for nowt? Let us show you how to install and run this increasingly powerful platform on your Mac or PC

> What better way to get inspired than to try a new piece of gear, right? Computer musicians tell themselves this all the time in order to rationalise the buying of new hardware or software. But what if you could gain a whole slew of new musical toys just by spending a little time setting up and optimising an installation of a Linux OS on your Mac or PC? Well, that's exactly what we're going to show you how to do in this tutorial. No, don't be afraid - Linux really is no longer the skull-popping, geek-only proposition that it once was.

Linux is the free and open source Unix-like operating system based on the Linux kernel. Open source means that anyone with some programming skills can become involved and contribute to the OS, as well as help fix any bugs.

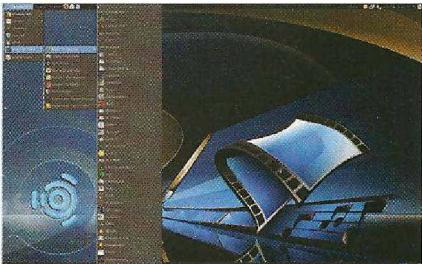
What's more, Linux runs very well on the most modest hardware. For example, the recommended system requirements for the latest Ubuntu (which we'll get onto later) are only a 700MHz x86 processor and 384MB RAM. So unlike some other operating systems, you won't have to keep buying a new computer every time you want to install the latest version.

These days, there are many ways to give Linux a try. You can run a distro inside Windows or Mac OS X using a virtualisation environment, such as Parallels, VMWare or even the free VirtualBox - but if you do, you won't be able to access your audio and MIDI hardware via a low-latency driver (making these redundant for our needs). You can also run a distro off of a LiveCD/DVD or even a USB flash drive. However, you won't get real-time performance and a high

number of tracks by running your OS from a portable storage device! So, we're going to guide you through the basic procedures for getting Linux fully installed and optimised on your Mac or PC, along with a variety of audio production software.

We're going to base this tutorial on the popular Ubuntu Studio, which contains a suite of great audio, graphics and video software. There are several audio- or multimedia-focused Linux distros out there, too, but many of them haven't been updated in quite a while. However, the Ubuntu distro is updated every six months, with Ubuntu Studio following suit.

There's just one final thing to note - Mac users will need to be running an Intel-based machine for this following tutorial. Now, let's get started with this powerful and creative platform!



Audio/MIDI hardware support

Linux has support for PCI (including PCI Express, PCMCIA and even ExpressCard), USB and FireWire devices, but it's limited to hardware for which the Linux community has been able to knock up drivers, since most of the major manufacturers don't supply Linux drivers themselves. While some manufacturers have been more supportive of the Linux community - by supplying driver developers with the technical details needed to code their own - others have been totally and unequivocally uncooperative. Shame on them!

If you discover that your favourite hardware won't work with Linux and the manufacturer hasn't yet done anything to help the community build drivers for it, then you may want to drop them an email asking them to reconsider their position - if software companies are made aware of their customer's issues, they'll often try their best to improve matters.

On the USB front, if your device is USB class compliant, it should work just fine under Linux. Otherwise, check if your PCI or USB device is supported by looking at the ALSA SoundCard Matrix found here: alsa-project.org/main/index.php/Matrix:Main.

For those who use FireWire, you'll find that there are far fewer supported devices than their USB and PCI equivalents. Nevertheless, you can check out the list of supported models through the FFADO project: ffado.org/?q=devicesupport/list.

discoDSP's HighLife running in Renoise 2.0 - just two of the many pieces of audio software with Linux support



What to download

There are some things that you need to consider before getting your Ubuntu-based audio production studio setup and operational...

First off, you must choose between 32-bit and 64-bit flavour distros. However, as you may know, there aren't many 64-bit applications and drivers readily available yet, so to help avoid some of the many associated headaches, we suggest that you go for a 32-bit distro. Mac users must opt for the 32-bit version regardless.

Secondly, you must choose to either install Ubuntu Studio directly from one of the DVD images available at the Ubuntu Studio site (www.ubuntustudio.org), or upgrade from a standard install of Ubuntu. If you choose the direct route, simply grab a DVD image from the download area of the Ubuntu Studio site. This comes with the full Ubuntu Studio setup and is available in 32-bit and 64-bit versions. Be warned, though, that the image is not a LiveDVD, meaning that you can't boot your system straight from it or check out the distro directly; and the installer is a very old-skool text-based affair that may be a bit daunting. Nevertheless, if you're au fait with this procedure, head over to www.ubuntustudio.org/downloads for the text installer version.

However, for those who prefer to keep things simple, the route we recommend involves grabbing a copy of the standard Ubuntu, then performing an upgrade to Ubuntu Studio from there - we'll be getting to this very shortly. You can get the LiveCD version of Ubuntu here: www.ubuntu.com/getubuntu/download.

Finally, you'll have to decide which version of Ubuntu to go with. Although it was released well over a year ago, v8.04 (codenamed Hardy Heron) is still used by many, as it's the current long-term support version. An LTS copy comes around every two years and is supported for a guaranteed period of three years after its initial release - this is in addition to the up-to-date versions released every six months, although these don't have such a great support network if things happen to go wrong.

Having said all this, you may still wish to install v9.04 (also known as Jaunty Jackalope) to ensure that you have the latest versions of the included applications and much better hardware compatibility for newer computers straight out of the box. Mac users in particular should check out the Ubuntu Studio Mactel Wiki,

which includes some highly useful comparison tables for discovering the exact version of Ubuntu that will be best suited to your model. The Wiki can be found at wiki.ubuntu.com/MactelSupportTeam/CommunityHelpPages

Right, to finally kick things off, burn your downloaded Ubuntu disk image to either a recordable CD or DVD. Preparing to install Ubuntu onto a Mac requires slightly different groundwork to PC - you can find details for each platform below, so feel free to skip to the relevant section. However, before attempting any of the following, we strongly recommend that you back up all of your important data, just in case the unthinkable (and unlikely) happens to your machine during the installation process.

Preparing for installation

We expect that most Mac users will want to install Ubuntu in addition to Mac OS X, and that their machine has a single internal hard drive. While Mac heads have the option to install and boot from another Mac OS X installation residing on an external drive, unfortunately they won't be able to do so with Ubuntu at this time. It is possible to install a copy of Ubuntu to an external drive, but booting straight into Ubuntu is another thing entirely. Therefore, we suggest not trying to do so!

Preparing your Mac for Ubuntu requires that you first install rEFIt, a boot menu and interface to the EFI that Intel Macs employ instead of a BIOS, which enables them to boot into multiple operating systems easily. We also need to resize your OS X partition to make space for Ubuntu.

You can grab a copy of rEFIt at [refit.sourceforge.net](http://sourceforge.net). Install it under OS X. Once you've done that, restart your machine - after it has booted up again, you should see the rEFIt splash screen.

For full instructions on how to resize your Mac OS X partition and how to get your system set up for just about any multi-boot situation imaginable, including a triple-boot OS X/Windows/Linux powerhouse, visit <https://help.ubuntu.com/community/MactelSupportTeam/AppleIntelInstallation>.

As we discussed in the Mac instructions above, PC users will also need to provide space for Ubuntu to be installed. If you're using Windows Vista, you can shrink your Windows volume within Vista without any third-party tools. Simply follow these instructions: www.vistarewired.com/2007/02/16/how-to-resize-a-partition-in-windows-vista

If you're using Windows XP, you'll need to either use a third-party tool, such as Partition Magic, or let the Ubuntu installer take care of it for you. For full instructions on dual-boot configurations in either XP or Vista, head to the following address: help.ubuntu.com/community/WindowsDualBoot.

Networking support

Depending on the version of Ubuntu that you decided to install, as well as which networking hardware that you have in your computer, you may well find that wireless networking doesn't work straight out of the box, at least without installing updated drivers. Therefore, we suggest that you have an Ethernet cable available during installation process, so that you'll at least have a wired network functioning - this will be especially important when you need to access online Ubuntu resources for helping in getting your Wi-Fi working again!



discoDSP's Discovery R3 synthesiser successfully runs within Renoise 2.0. In fact, more and more plug-ins are being ported across to the Linux operating system

Plug-ins

The Linux audio world boasts several different plug-in formats, including but not limited to LADSPA, LV2 and DSSI. Additionally, there are some native Linux VSTs, as well as support for using Windows VSTs with software adapters. So let's break things down and learn more about each option...

LADSPA is the most popular and supported effects plug-in standard on this platform - you can think of it as the VST of Linux audio. There are many LADSPA plug-ins already installed with Ubuntu Studio and available for you to try. For more information about LADSPA, check out www.ladspa.org.

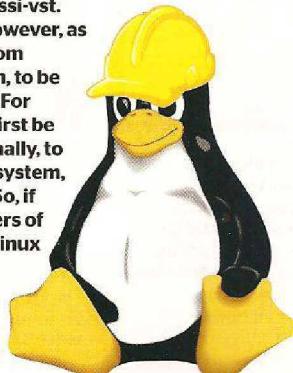
LV2 is the successor to LADSPA that addresses some of LADSPA's limitations. However, not many LV2 plug-ins are available currently and the only host that supports LV2 in a non-beta format is Ardour. For more information, head over to lv2plug.in.

DSSI (pronounced 'dizzy') is considered the LADSPA for instruments, so you can think of it like Steinberg's VSTi. And, yes, Ubuntu Studio comes with some DSSI virtual synthesisers ready and waiting for you to try out. More can information can be found here: dssi.sourceforge.net.

Native Linux VSTs are, er, VSTs that have been specifically compiled for the Linux platform. They will usually come in binary format and placed in a folder that you can point your native Linux-compatible host straight to. Unfortunately, there aren't many native VSTs available right now. XTSoftware, the creators of the fantastic energyXT, have put up a site that keeps track of what's available: www.linux-vst.com.

You can also run some Windows VSTs in Linux using a wrapper, along with WINE (which enables the running of Windows programs under Linux). The two main wrapper technologies are FST and dssi-vst. Using them is not a trivial pursuit, however, as there's lots of software compiling from source, not to mention configuration, to be done in order to get things working. For example, a host that uses FST must first be compiled with the wrapper. Additionally, to get dssi-vst up and running on your system, you have to compile it from source. So, if you want to dip your toes in the waters of running Windows VSTs inside your Linux audio applications, we strongly recommend that you take in the following two links:

www.joebutton.co.uk/fst/
www.breakfastquay.com/dssi-vst/



ReValver

AMP MODELING SOFTWARE

"For realistic, great-sounding Peavey amp solutions, ReValver is the new king. 9/10."

- Computer Music Magazine, November 2008

"ReValver is a force to be reckoned with. The amps sound great!"

- MusicTech Magazine, October 2008

FINALLY, REVOLUTIONARY AMP MODELING SOFTWARE FROM A COMPANY THAT ACTUALLY BUILDS TUBE AMPLIFIERS!



ReValver MK III from Peavey is a revolutionary 64-bit amplifier modeling software that captures the true characteristics of vacuum tubes while giving players unprecedented control over their tone and gain structures. With 65 linkable sub modules that model legendary amps, stomp boxes and rack effects, plus in-depth tweaking on the circuit level, ReValver is the most advanced virtual amplifier on the planet.





Mac users have it easier than their PC counterparts when it comes to getting Ubuntu Studio community support

Upgrading to Ubuntu Studio

When you boot into Ubuntu for the first time, it will ask you to update the software and you may notice that some of your hardware doesn't function quite as expected. This last is quite rare. However, to give an example, your laptop's touchpad may work sporadically. To resolve problems like these, Mac users should go back to the Ubuntu Studio Mactel Wiki and follow the instructions. Due to the diversity in PC hardware configurations, PC users will probably have to look to the Ubuntu online forums for solutions to their peripheral issues.

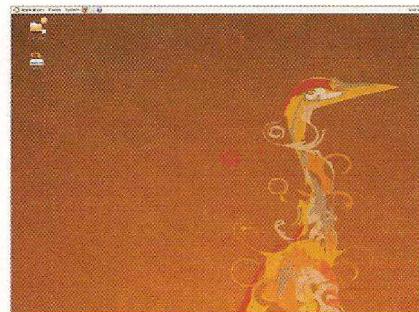
You'll need to get the `ubuntustudio` metapackages, as well as the real-time kernel, to upgrade your system to Ubuntu Studio. To do this, open the Menu and hit Applications>Accessories>Terminal. Then type the following on one line:

```
sudo aptitude update
&& sudo aptitude install
ubuntustudio-desktop
ubuntustudio-audio
ubuntustudio-audio-plugin-ins
ubuntustudio-graphics
ubuntustudio-video linux-rt
```

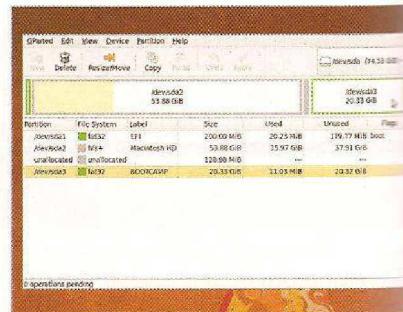
Hit Enter and the system will ask for a password, before upgrading. Note that you can leave out `ubuntustudio-desktop` from the above code if you like, as some people don't like the look of the desktop theme, while others claim that they experience compatibility issues with the original Ubuntu desktop packages. We've never run into this problem, but consider yourself forewarned. You could also remove `ubuntustudio-graphics` and `ubuntustudio-video`, especially if you never plan on doing anything but audio production.

Once the upgrade is finished, you can restart your system and locate the real-time kernel option from the GRUB menu. The real-time kernel name will end with `-rt`. Try booting up into this real-time kernel, as this is the version that you'll want to run for serious audio work.

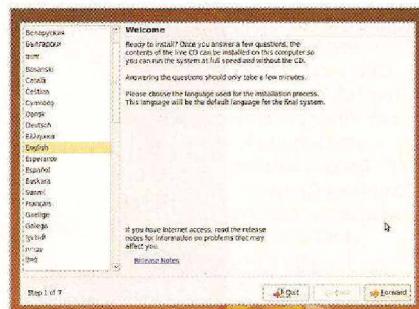
> Step by step Installing Ubuntu



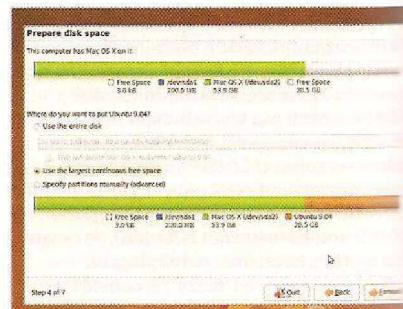
1 > Boot your computer from the Ubuntu CD (ie, switch it on with the disc in the drive). Select **Try Ubuntu without any change to your computer**. Ubuntu will load up, enabling you to try out the distro before actually installing it. One thing to note is that, if you're using a laptop, a USB mouse is preferable, just in case your touchpad doesn't work too well.



2 > This step is for Mac users only. If you've resized your OS X partition using the Boot Camp Assistant, you'll need to delete the Windows partition that it insisted on creating before continuing. You can do this by going to **System Administration>Partition Editor**, selecting the Windows partition and hitting **Delete**. Remember to choose **Apply** before exiting.



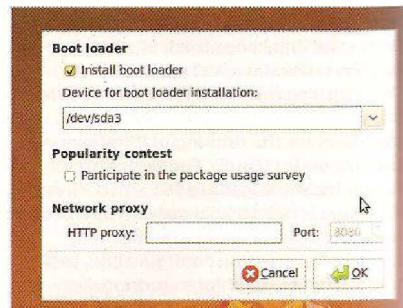
3 > Click the **Install** icon on your desktop to start the Ubuntu installer. Click **Forward**, then choose your language, timezone and keyboard layout, hitting **Forward** again after each selection. Note that Mac users should be sure to pick a **Macintosh** keyboard layout.



4 > The partitioner will appear. Select **Use the largest continuous free space** and click **Forward**. Make a note of what the partitioner is calling the drive upon which you're installing. It should be something like `/dev/sda` for PC users. On a Mac with a single hard drive, it should be `/dev/sda3`.



5 > Enter your information on the next screen and hit **Forward**. Select **No** on the Migrate Settings screen and click **Forward**. On the Ready to Install screen, you'll see a summary of what's going to be done by the installer. Choose **Advanced**.



6 > Make sure that **Install boot loader** is selected and that the drive you noted in step 4 is selected below. Click **OK**, followed by **Install**. Reboot after the install has finished. Finally, hit **Enter** to choose the default Linux kernel at the GRUB menu.

Enabling real-time support

If you chose to install a newer version of Ubuntu than v8.04, you'll need to add a group called **audio** to your system, then give your username to that group. To do this, go to **System»Administration»Users & Groups** and click **Unlock**. If you chose to install v8.04, though, there's absolutely no need to worry, as the system will automatically create an audio group and add your user account name to it.

Now we can enable real-time support for our audio applications by going to the Terminal (**Applications»Accessories»Terminal**) and typing each of the following commands, hitting **Enter** at the end of each one and finally restarting the computer:

```
sudo su -c 'echo @audio - rtsprio 99 >> /etc/security/limits.conf'
```

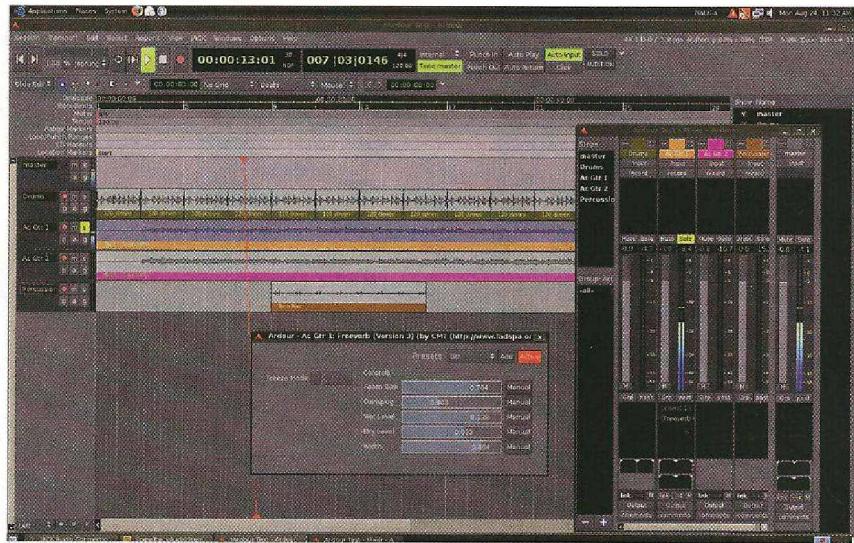
```
sudo su -c 'echo @audio - nice -19 >> /etc/security/limits.conf'
```

```
sudo su -c 'echo @audio - memlock unlimited >> /etc/security/limits.conf'
```

Audio setup

Windows users know that one of the first things you do when setting up an audio application is to switch to using either WDM or ASIO drivers, while Mac owners switch to CoreAudio if necessary. We need to do something similar in Linux. Ubuntu's default sound system is PulseAudio, which has its uses but isn't great for high-performance audio work. Therefore, we switch to a combination of ALSA and JACK - see the walkthrough below for how to do this.

Finally, there are two places to go to if you run into any problems. To get JACK to operate correctly, visit help.ubuntu.com/community/HowToJACKConfiguration, and if you experience any Ubuntu Studio issues, head on over to help.ubuntu.com/community/UbuntuStudioPreparation. Also, the table included on this page (right) provides support for specific audio applications on Linux, with a list of places to visit for help. Now follow the



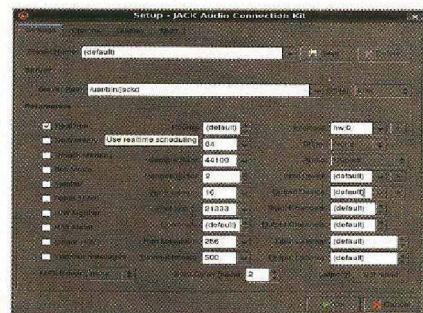
An Ardour session in full swing - this is just one of the many great DAWs available to Linux users

Linux Audio application VST Support

Application Name	VSTs Type Supported	How to get VST Support:
Ardour	Windows via FST	Build from source: ardour.org/building_vst_support
EnergyXT2	Native Linux VST	Point to folder where plug-ins are located in application preferences
LMMS	Windows via FST	Download latest version: lmms.sourceforge.net/download.php
MusE	Eventually, Windows via FST	Wait for MusE v2.0
QTractor	Native Linux VST and Windows via dssi-vst	Install dssi-vst. Build from source: see file README.VST in tarball
Renoise	Native Linux VST	Add plug-ins to choice of folders Renoise searches for VSTs: tutorials.renoise.com/Renoise/SettingUpLinux . More info in QuickStart PDF in tarball
Rosegarden	Windows via dssi-vst	Install dssi-vst and see INSTALL file in tarball

> Step by step

ALSA and JACK setup



> Go to **Preferences»Sound** to bring up the er, Sound Preferences. Set each device in the list to **ALSA**. You can also click on the playback **Test** buttons to hear a sound verifying that everything is working well with your audio interface. Click the **Sounds** tab and uncheck **Enable software sound mixing (ESD)**.

2 > If you end up having sound problems, try removing PulseAudio from your system completely, following this guide: idylliclux.wordpress.com. You can't remove PulseAudio without taking important system components with it, so check the sites for how to do this without breaking your Ubuntu install.

3 > Head to **Applications»Sound & Video»Audio Production»JACK Control** to open the JACK GUI. Click **Setup**, check **Realtime**, select the **Misc** tab and check **Start JACK audio server on application startup**. Click **OK** to save your new settings, then hit **Start** to finally get your Linux running in real-time mode!

Sing it back

Creating reversed reverb sounds in Renoise by rendering a vocal sample and applying effects



> Last month, we bounced portions of our song down as audio for manipulation. This time, we're going to use the same method to achieve an entirely different result: creating a reversed vocal effect.

The particular sound that we're going to produce is that ghostly build-up sometimes used immediately before a sung vocal line. We'll be using a robotic voice for this purpose, but the principle is the same for a human voice.

We need to reverse the first syllable only, add some reverb and render it as audio. Then we can

reverse the resulting sound, and finally, play it just before the original sung line.

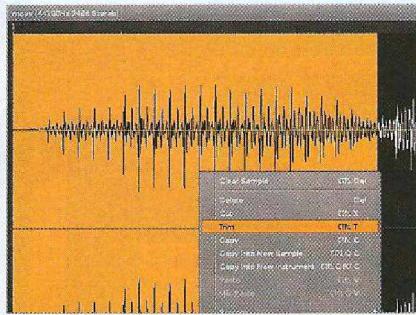
In this example, we'll use a sample that, in its entirety, 'sings' the words "move your body". So we want to isolate just the first syllable: the word "move". When using the Sample Editor to trim the desired (or delete the undesired) parts of the sample, it's a good idea to audition it on your keyboard, while watching the playhead as it passes through the sample. This will enable you to ascertain, visually, exactly what each of the peaks and troughs represent in your sample.

Later on, when we come to analyse this particular sound, we'll be able to clearly see the four syllables of the phrase represented by four distinct sections in the sample.

Realistically, the tempo of your track will be dictated by the music that you're creating, but for the purposes of this exercise, we'll be using a song tempo of 138bpm, which you can set now in the top-left of Renoise's main screen. The sample we'll be using is located in the **Totally Trackers** folder on the cover DVD, so dig it out and let's begin. **cm**

>Step by step

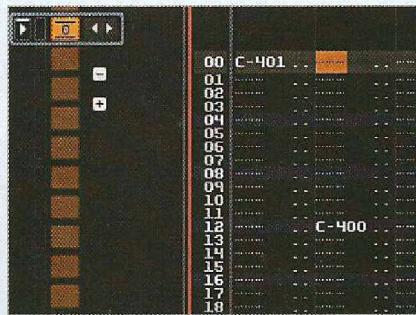
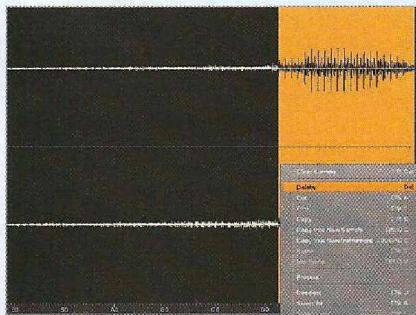
Creating reversed reverb vocal effects



1 > First of all, load the sample **Move.wav** into both Instrument slots 00 and 01, so that you have two copies. Select Instrument 01 and view the sample in the Sample Editor. Highlight the part of the sample in which the word "move" is sung, right-click and select **Trim**. (Continue or load **CM_trackersTutorial_17a**.)

2 > Next, click the U-shaped arrow icon in the Sample Editor to reverse the sample. Switch to the Pattern Editor and, with Track 01 selected, drag a Reverb effect from the TrackDSP list onto the effects stack. Set the **Room Size** to 90% and bring the **Wet Mix** down to something like -5dB. (Continue or load **CM_trackersTutorial_17b**)

3 > Press **Esc** to enter Edit Mode and place the note **C4** at the beginning of Track 01. On the same track, highlight the section from position 00 to 16, right-click and choose **Render Selection To Sample**. You should now see a new sample in Instrument slot 02 called **Render Selection 01**. (Continue or load **CM_trackersTutorial_17c**)



4 > Select the newly created Instrument slot 02 and go back to the Sample Editor. Reverse the sample as we did in Step 2, then select the part of the sound where the original spoken word ("move") begins (after the reversed reverb), right-click and **Delete**. (Continue or load **CM_trackersTutorial_17d**)

5 > We no longer need the Reverb on Track 01, or the cropped sample in Instrument 01, so **Delete** them both. Place the reversed sample note **C4** at position 00. Click the **+** symbol at the top left of Track 01, **Tab** across and place a **C4** note at position 12 in the next column, along with the original sample. (Continue or load **CM_trackersTutorial_17e**)

6 > Now play back the pattern to hear the result. You'll notice that the volumes of the two samples are mismatched. Click the reversed sample and choose **Instrument Settings**. From here, you can drag the **Amplify** slider up to raise the volume of quieter sample to better blend the two.

Minority report

We explore the fundamental characteristics of minor keys to inject some melodic and harmonic beauty into your music



> Over the last few months, we've been looking at a variety of modal scales, including a fair few that might be described as minor modes (because the third degree of the scale is minor, or three semitones above the tonic). However, a minor third isn't the only thing that determines that a particular tune or progression is in a minor key, so here and in next month's issue, we're going to step outside the modal system and see exactly what is quintessential in a minor piece.

Minor dominant

Let's start with the appropriately named natural minor scale, which is simply a major scale that begins on the sixth step and thus is also identical to one of the modes we've been discussing recently. The first part of **Fig 1** shows D natural minor, which shares its key signature (one flat) with F major. This is fine for a variety of tunes: it's not yet the season to be jolly, but the well-known carol *God Rest Ye Merry, Gentlemen* uses the notes of the natural minor exclusively. In this key, the song starts with two Ds, then moves up to two As and... well, you can work out the rest – or you can listen to it at the beginning of the MIDI file on the disc.

The dominant chord, built on the fifth degree of the scale, is traditionally vital in defining the tonal centre of a key. If we take the diatonic chord five (V in traditional notation) from this scale, we get A minor, which is OK. However, if we change the minor to major, using C instead of its natural counterpart, we get the more familiar sound of the carol, as it's usually harmonised. The opening phrase, with both versions of the dominant, minor then major, is included in the MIDI file on the disc.

So here is our first move away from purely

1
The natural minor/Aeolian has its seventh step raised to become the harmonic minor

2
The (ascending) melodic minor scale, and the modified D major scale

diatonic modalism, raising the seventh step of the scale by a semitone to create the harmonic minor scale (see the second part of **Fig 1**), which exists for purely, er, harmonic reasons.

Melodic considerations

If you try to write tunes using the harmonic minor, you'll soon come across the rather middle-eastern sounding gap between the sixth and seventh steps. Technically it's called an

augmented second, which is three semitones apart, yet the ear expects gaps of one or two semitones in scales. Composers over the centuries have come to favour a dual system of also raising the sixth degree to bring it closer to the seventh, or lowering the seventh step back down when it's not expressly required to fit with the dominant chord. This creates a scale with two versions of both the sixth and seventh degrees, known as the melodic minor scale for obvious reasons.

Traditionally (and this applies to playing grade exams and writing theory tests) one plays the scale with raised sixth and seventh on the way up, and lowered notes (ie, according to the key signature) on the way

"If you write using the harmonic minor, you'll soon come across the middle-eastern sounding gap between the sixth and seventh"

down, with the descending form identical to the natural minor (hence why **Fig 2** shows the ascending version only). This flexibility with two degrees of the scale enables a greater variety of chords than in the major – for example, the chord built on the fourth degree (G in this case) can be either major or minor, depending on which version of the B you choose. The raised seventh, as we have seen, permits a major chord five (V), but the natural seventh also enables you to use a major chord on the third step, F.

Jazz musicians in particular tend to ignore the descending version (as it's identical to the relative major) and concentrate on the ascending version. If you're going from relative major to relative minor, and raising two notes just to get the right scale annoys you, there is an easier way. Simply take any major scale that you know well and lower the third degree by a semitone to achieve this, as demonstrated in the second part of **Fig 2**. And our work is complete – just don't use this method in any exams! cm

The theory of relativity

As has been noted in the main text, D minor shares its key signature with F major. The two scales are said to be the relative major and relative minor (respectively) to each other. The link is, of course, the natural minor, or Aeolian mode, which contains the same notes as the major scale. The pattern can be seen as the relative minor starting

on the sixth degree of its parent major, or conversely, as the relative major starting on the third step of the minor. The illustration below shows the key signatures for both major and minor scales. Any alterations to this, such as raising the sixth and seventh steps, will need to be made with accidentals.

C major	F major	B ^{flat} major	E major	A ^{flat} major	D major	G major
A minor	D minor	G minor	C minor	F minor	B ^{flat} minor	E minor

Also used for music in no key: G major, E minor, D major, B minor, A major, F^{sharp} minor, E major, C^{sharp} minor, B major, G^{sharp} minor, F^{sharp} major, D^{sharp} minor.

Each major key signature has its minor counterpart – well, recycling's supposed to be good...



Mother tongue

All instruments have natural characteristics that define their sound, but can the same be said of computers? rachMiel has the answer...

rachMiel



rachMiel has spent the better part of a decade studying composition in America and Germany. A recovering atonalist,

his musical influences range from Frank Zappa, Karlheinz Stockhausen and North Indian classical drumming to 60s pop, horror movie soundtracks, avant electronica and, above all, silence.

"What is the mother tongue of an instrument that can speak all languages equally well?"

> Every musical instrument has its mother tongue or native language, so to, er, speak. The determining factors include pitch range, timbre, articulation, agility, dynamics and instrument-specific idiosyncrasies, such as drum rolls, electric guitar feedback and so on.

Consider, for example, the cello. Imagine it speaking (or singing, if you will) a melodic line in its own unique cello-istic mother tongue. The pitch range is about that of a baritone, low to mid-low, with occasional forays into tenor territory; timbre is sensual, voice-like, and mellow to strident; articulation tends towards legato; agility is more stately than that of a violin; dynamics range from barely perceptible to a healthy shriek; and its idiosyncrasies include playing chords, harmonics, sul ponticello (on the bridge), pizzicato and so on.

Now apply the same analysis to a violin, xylophone, tuba, timpani, sitar or human voice. Clearly each instrument has its own unique personality, with capabilities, limitations, quirks, charms and overall musical gestalt. A critical

part of a composer's job is to become deeply familiar with the characteristics of the instruments that he or she writes for. If not, they run the risk of creating music that sounds wrong, awkward or inappropriate on the instruments playing it.

Computer as instrument

Dictionary.com defines an instrument as a "contrivance or apparatus for producing musical sounds". So computers, in this sense, definitely qualify as instruments - particularly for composers who build pieces from the ground up using them: from sound generation to editing, mixing and mastering. It is entirely possible to produce a professional electronic composition from scratch with a computer, keyboard, mouse and pair of speakers.

So, the question arises: If the computer is indeed an instrument, what is its mother tongue? It turns out that this is very difficult to answer. An instrument's essential personality is defined as much by what it can't do as what it can - a flute can't play below middle C, a piano can't crescendo a held note and a snare drum can't play a pitched melody, for example. A computer, however, can do pretty much anything - its pitch range, timbre, articulation, agility and dynamics are all unlimited. So the question becomes this: What is the mother tongue of an instrument that can speak all

languages equally well? After a great deal of contemplation, here's my stab at an answer...

Finding the mother tongue

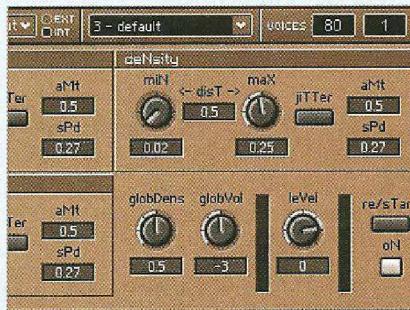
Since the computer's limitlessness is such a key part of its nature, it must also be integral to its musical personality. Its fluency with all manner of audio generation means that it has a universal mother tongue, giving rise to musical freedom. But where does that leave us? Some pathway through the field of possibility is needed.

To help our search, I've come up with five essential qualities of a computer, binary logic, integer maths, intensive calculation, recursion and randomisation. Binary logic lies at the heart of all computers - a bit (the atom of computing) is either on or off, with no in-between state. Because of this, computers work exclusively with integers (whole numbers), even when representing fractions. Pretty much everything that a computer can do is built around intensive and lightning-fast calculations - around 20 billion per second on a typical PC nowadays. One of the computer's favourite tricks, recursion, feeds a portion of a calculation's result back into the original over and over like audio feedback. Randomisation is something computers do exceedingly well, due to the ease with which they can generate and manipulate (pseudo-) random sequences of numbers.

Lingua mater

After arriving at these five essential computer qualities, I created a Reaktor ensemble (see the walkthrough over the page) that embodies all of them. The Lingua Mater ensemble (Latin for "mother tongue") generates a vast array of sine waves. I considered using square waves instead, because of their binary nature, but they sound harsher, more specific and contextually loaded, whereas sine waves are most wonderfully neutral and abstract.

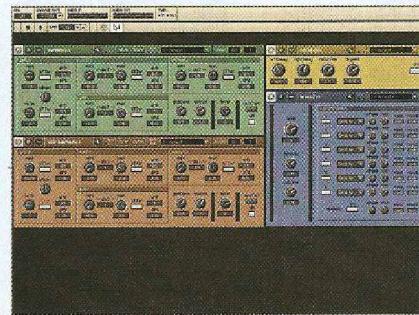
Lingua Mater manifests binary logic by periodically turning each of its 128+ sine waves on and off. Integer maths is used to derive the pitches. Harmonics are integer multiples of a specified root frequency (RF): 1xRF, 2xRF, 3xRF, etc. Subharmonics are integer reciprocals of the root: 1/1xRF, 1/2xRF, 1/3xRF, etc. Intensive calculation is used to incorporate 'jitter' into the audio flow: smooth, slow and subtle variations in pitch, volume and duration, etc. Recursion (feedback) is used in conjunction with delay to generate reverber-like echoes. And finally, guided randomisation determines jitter trajectories, sine-wave start/end points, pitches, volumes, pannings and recursion parameters. cm

>Step by step
A computer's mother tongue

1 > My Reaktor ensemble Lingua Mater (on the DVD) attempts to embody the five essential computer qualities that I discussed in the main text. I used integer maths to generate a set of sine-wave harmonics: $1xRF$, $2xRF$, $3xRF$ and so on, where RF =root frequency. Binary logic is used to turn these sines on and off. Here's how it sounds with 80 harmonics and a Root of 20Hz: **Harmonics.wav**.

2 > Even with 80 harmonics, a root of 20Hz yields a maximum frequency of 1600Hz, which is not very high. In keeping with the computer's lack of pitch-range limitations, I use integer maths again to generate subharmonics - $1/1xRF$, $1/2xRF$, $1/3xRF$ and so on - of a **Root** at the upper threshold of human hearing: **20000Hz**. Check out how 80 of these subharmonics sound together: **Subharmonics.wav**.

3 > The next two qualities are intensive calculation and randomisation. These join forces in creating 'jitters' - smooth, randomised variations - for the key parameters of both the harMonics and sub-harMonics instruments. Here are 64 harMonics (**Root=20Hz**) and 64 sub-harMonics (**Root=20000Hz**), with jitters for width (duration), density and panning: **Jitter.wav**.



4 > Next I tackle recursion. My rather simplistic, but quite musically effective, interpretation of this is as feedback in a two-tap delay. Feedback qualifies as recursion because it sends the result of a calculation (delayed signal) back into the original (delay processor). It sounds like a poor man's reverb, which works just fine for this ensemble: **Recursion.wav**.

5 > Randomisation drives the jitter controls. But I can't stop there, so I include a randoMation module that randomly automates a few dozen control knobs in the ensemble, including global densities, global volumes, jitter speeds and more. Up until now, randomisation has been switched off - here's what it sounds like turned on: **Randomation.wav**.

6 > For the grand finale, I set the ensemble to play 80 harmonics (**Root=20Hz**) and 80 subharmonics (**Root=20000Hz**), and turn on all jitters (including those affecting pitch), recursion and randomisation. The result is more varied than previous examples, largely due to the ensemble-wide density and volume trimmers. Enjoy the sound of a computer singing to itself: **Full.wav**.

Experimentalists' corner: Computers composing for pleasure?

Yes, I'm aware that computers can't exactly 'feel' pleasure, at least not in the sense that human beings do. But for the sake of intellectual curiosity, let's pretend that they can and ask the question: What kind of music would computers compose for their own enjoyment?

To answer, we must understand how computers perceive the world as numeric data. Their experience of a musical passage

would not involve audible sonic waveforms, but a sequence of numbers representing digitised samples of these waveforms.

What kind of music would pleasure a MacBook Pro? Well, consider what the laptop would perceive at the CPU level: a block of 64 bits that keeps 'lighting up' in different patterns. Pattern 1 might persist for the duration of one sample ($1/N$ seconds, where N =the sample rate), followed by

pattern 2 $1/N$ seconds later, then patterns 3, 4, 5 and so on. This last would be like the flashing grid of panel lights on a mainframe computer from a bad 50s sci-fi movie, only about 100,000 times faster. The 'pleasure' would come from the succession of these 64-bit patterns. And how would this music sound to us humans? Well, my guess would be something like an ongoing whoosh of intricately textured noise.

Mods and rockers

Our resident synth sculptor demonstrates the marvels of mod matrices for getting your patches moving nicely



ON THE DVD

TUTORIAL FILES

Find Scot's synth patch for the following walkthrough in the Tutorial Files folder

> My first instrument (a Moog Rogue) offered a fixed signal path - the internal architecture was written in stone. It offered one oscillator that was plumbed through a filter, with a simple LFO and envelope generator for modulation, and the LFO amount was hardwired to the mod wheel. Now, being my first synth, such limitations only became apparent as my knowledge and experience grew. Unfortunately, said limitations were not easily left behind.

It was only when I laid my mitts on one of

Oberheim's cut-priced Matrix series that I finally got a taste of the sort of flexibility available to semi-modular and modular synthesizers. You see, each of the Matrix synths offered a modulation matrix, with which the user could take some control over the signal path.

Today, such things are common, but back then, the mod matrix was a revelation, providing near infinite possibilities. No longer was my LFO shackled to my mod wheel, or my envelope generators lashed to my amp and filter. It was to be an expensive revelation, as I would finally

plump for a pricey modular system.

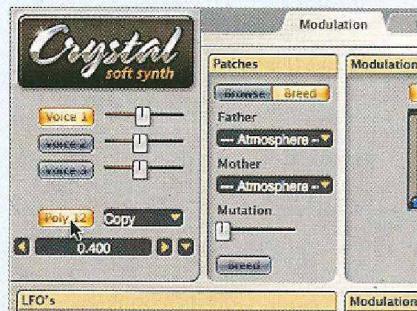
Thank goodness for the soft synth! The nearly infinite power offered by virtual synths makes for anything from basic synths with small mod matrices, to massive, fully modular behemoths. The sort of modulation options I once pined for are now available to anyone and everyone. They offer the ability to modulate not only the usual synthesis parameters, but also the modulators themselves. And that brings me right to the heart of this month's instalment. Read on! cm

>Step by step

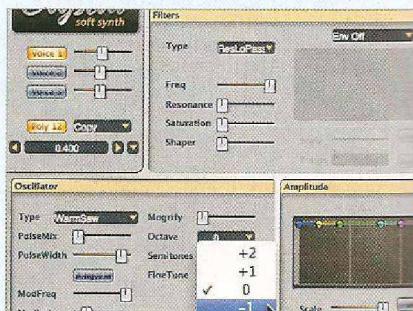
Getting creative with modulation



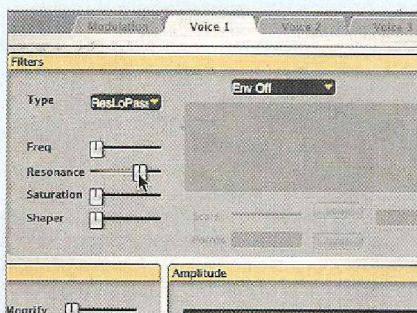
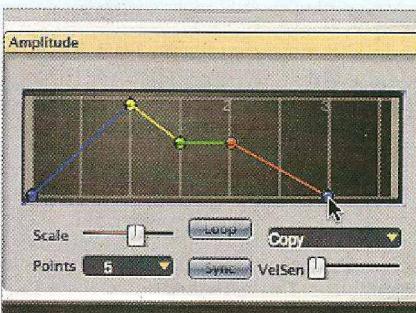
1 > As I said, I worked for years with fixed-path synths before getting a semi-modular number. Thankfully, developers like Green Oak provide amazing free semi-modular instruments like Crystal, which we will be using for this tutorial. It can be found on your coverdisc. Fire it up in your host and select an unused preset.



2 > We're going to use some advanced modulation techniques to create what's sometimes referred to as a 'musical effect' sound. It will have some of the qualities of a pad, but it'll be much less subtle. We want to play our patch polyphonically, so click Crystal's Poly 12 button.

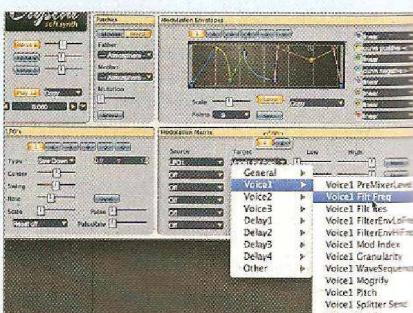


3 > It's a pretty bland sound so far, but it'll do for a foundation. Let's get things going by tweaking Voice 1, which happens to be the only voice currently in play. Click the Voice 1 tab at the top of the GUI to bring up the editor for that voice. Notice that the current Octave setting is 0 - change that over to -1.



4 > To shape the amplitude of our voice, drop the number of Points down to 5 since our sound will be somewhat lengthy. Reduce the Scale a bit, too. You should see at least six or seven sections in the grid. Once done, click and drag on the envelope points to approximate the shape shown here as closely as you can.

5 > Our next step is to bring some filtering into the picture, then modulate that filter with an LFO. Turn to the filter section for Voice 1 and reduce the Frequency slider all the way to 0. Now increase the Resonance to around 0.740.



6 > Our sound has all but vanished. We need to modulate that filter frequency. Tab over to the Modulation page. Note that LFO 1 is currently seen in the LFO section. Click on the Type arrow and select Saw Down as the waveform. Now, move to the Modulation Matrix and select LFO 1 as the first Source, and Voice1 Filter Frequency as the Target.

RECOMMENDED LISTENING**TIM BLAKE, NEW JERUSALEM**

The erstwhile Gong and Hawkwind synthesist is an absolute maestro of modulation, and this album is stuffed full of prime examples of the subverted signal path. His patches pulse, throb, sweep and swoosh to form a swirling, psychedelic plasma. It's terrific stuff that no doubt influenced many late night headphone journeys.

STEVE ROACH, KEVIN BRAHENY & MICHAEL STEARNS, DESERT SOLITAIRE

These guys were all electronic music pioneers in their own right, and they came together here to record an ambient classic. Roach had the Oberheim Matrix 12 in tow and his mastery over its modulation capabilities is evident in the deep, organic sounds that he was able to coax from the instrument. Sadly, the CD has been discontinued, but you can still get the downloadable version from Amazon and the like.

PRO TIPS**TOUCHING THE VOID**

If your MIDI controller offers aftertouch sensitivity, you have one of the most expressive modulation tools available. You might try it on the LFO rate, envelope decay or oscillator mix for real-time sound shaping.

SIDE EFFECTS

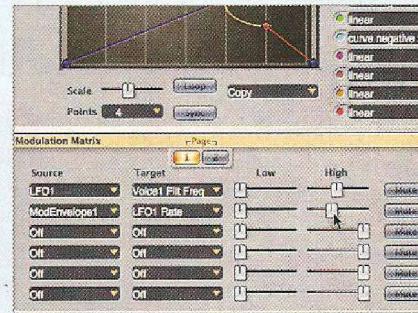
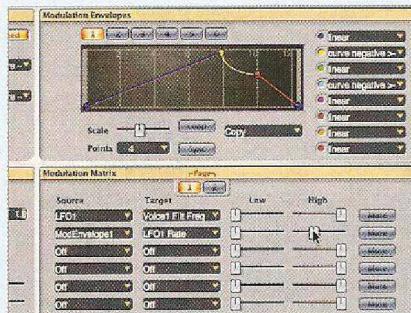
Many instruments offer built-in effects processors, but most of us just use 'em to slather on a bit of reverb or delay. Yet, when they're modulated by envelopes, LFOs or even the mod wheel, familiar effects become much more than mere bread and butter numbers.

JARGON BUSTER**SEMI-MODULAR SYNTHESISER**

These synths differ from fully modular ones by limits on functionality, such as a fixed number of oscillators, filters, etc. However, the user can define the way these functions may be patched into the signal path.

Scot Solido

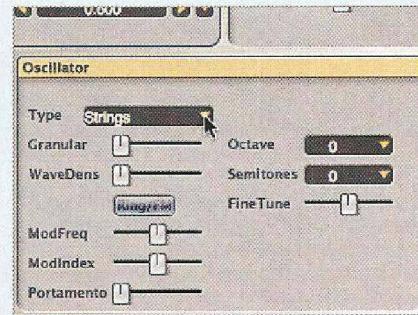
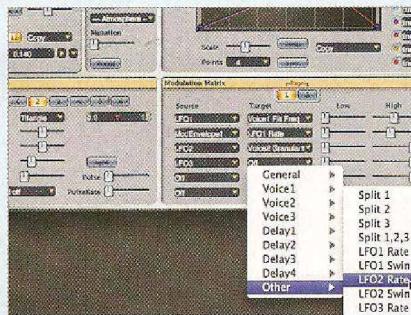
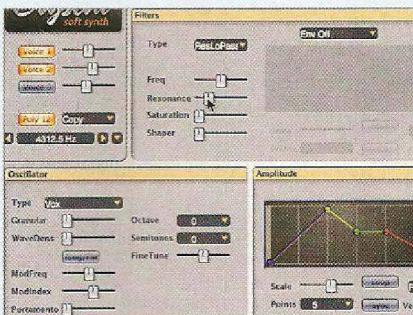
Scot bought his first synth over a quarter of a century ago. A synthesist, sound designer and audio engineer of international repute, he's provided factory presets for many of the music software industry's most acclaimed synths, samplers and drum machines, not to mention the cm Studio. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name Christus and the Cosmonauts.



7 > Hold a couple of notes and the effect of the LFO on the filter should be obvious. It's quite regular in its timing and that's quite cool for certain sounds. However, it'd be nice if the rate changed over time. We can do this with an envelope generator, so go back to the Mod Matrix and select **ModEnvelope1** as the second **Source**, with **LFO1 Rate** as its **Target**.

8 > Directly above the Mod Matrix are the Modulation Envelopes. The first one is selected by default. Reduce the number of **Points** to 4, and use the **Scale** slider to zoom out. Make sure the envelope isn't looping and try to copy the shape you see here. Let's return to the Matrix and reduce the amount of modulation to the filter by attenuating the first slot's **High** slider.

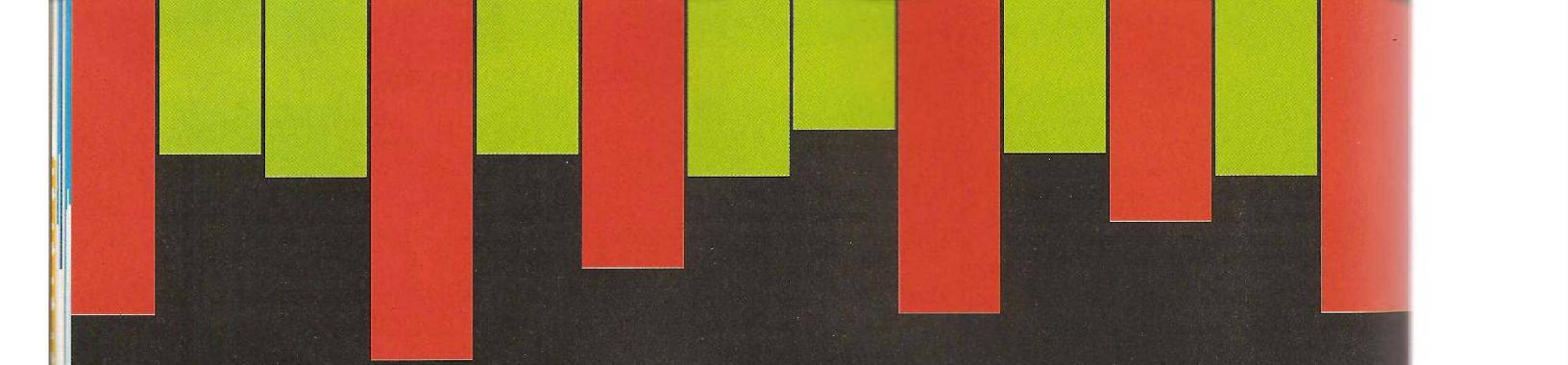
9 > Hold a chord and you should hear the modulation gradually build, even as our new envelope modulates the LFO rate. That's much more exciting than a simple rhythmic pulse. Let's lower the **High** slider for slots 1 and 2 in the matrix a little, too, as shown above. This keeps the modulation from exceeding a given amount.



10 > Activate **Voice 2** and hit its tab. Select **Oscillator Type Vox**. Tab back over to **Voice 1** and select **Copy** from the Amp envelope's menu. Return to **Voice 2** and select **Paste** from its Amp envelope menu. This will duplicate the envelope shape from Voice 1, saving us a bit of time. Drop Voice 2's Filter Frequency to **4300Hz** and nudge the **Resonance** a touch.

11 > Now back to the Modulation page! Select LFO 2 and call up a **Triangle** wave. In the Matrix, choose **LFO2** as the **Source** for slot 3, with **Voice2 Granularity** as the **Target**. Our sound would be cooler still if we modulated the rate of our second LFO, too, so select **LFO3** as the fourth slot's **Source**, with **LFO2 Rate** as its **Target**.

12 > If you like, you can activate **Voice 3** and create a simple patch using the **Strings** sample. You might want to set one or two of your LFOs to **Reset On Note**. Slather on some delay and save your new masterpiece. You can hear mine by loading the patch **CMMondoMods**.



DPC latency: The ghost in the machine

If you're experiencing audio glitches or dropouts, your PC might be suffering from DPC latency. Here's how to diagnose and cure this most distressing of ailments...

> When you overload your master channel or use too many effects plug-ins on your tracks, you expect to experience audio playback problems. However, sometimes glitches, crackles and dropouts occur for no apparent reason whatsoever, and it can be hugely frustrating trying to root out the cause of the problem, particularly when it's the elusive issue known as DPC latency. Allow us to explain...

First of all, what exactly is DPC latency? Well, Deferred Procedure Calls (DPC) are requests made by the hardware subsystem on your computer's CPU to process information or perform a particular task. Your CPU responds to these calls by interrupting its current activity in

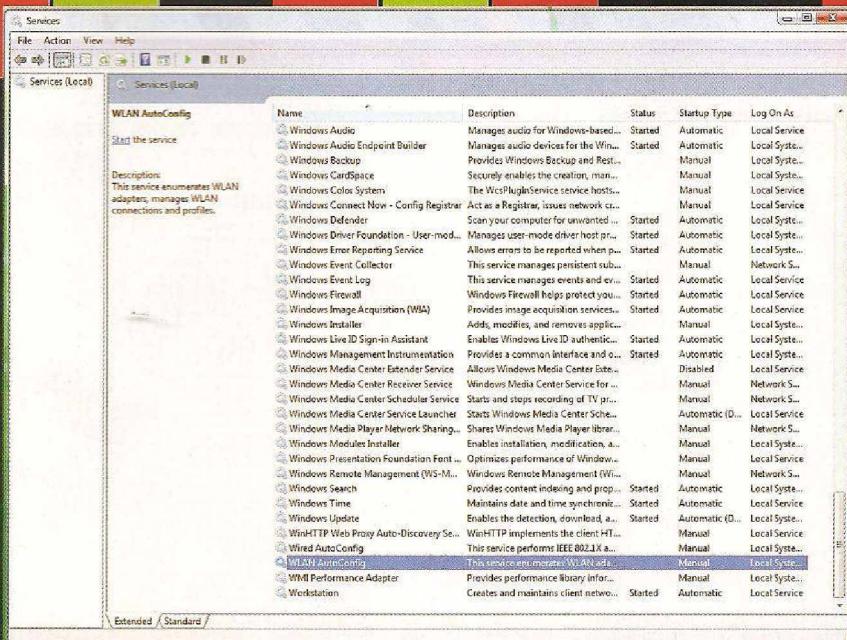
order to spend processing cycles servicing the request. As a result, your valuable CPU power is drawn away from doing user-driven tasks whenever it receives a call. And of course, the more DPCs made by your hardware, the less time that your CPU has available for performing the tasks that you actually want it to carry out. These types of calls are most often made by third-party hardware, like wireless network cards and video cards, or by their (sometimes) badly written drivers/programs.

What does all this mean for you as a computer musician? Well, as we've suggested above, more calls made by your subsystem means that your computer has less time to process the things that you really care about,

including rendering masses of audio, running large numbers of CPU-thirsty plug-ins and keeping up with your deft real-time tweaking.

System failure

Why should this ever cause a problem, particularly given the sheer power of today's multicore processors? Surely CPU power is now so high and memory so capacious that this should no longer be an issue? Well, unfortunately not. DPC latency is something that can affect all machines, regardless of their CPU power. So you could buy the most devastatingly powerful computer currently available and DPC latency could still make its audio performance next to useless. And more importantly for any



The Service Manager in Windows XP is the place to go to determine whether or not your peripherals are playing nice

problem, particularly when they relate to peripherals such as WLAN cards, third-party firewalls or application services. Right-click each device in turn and select **Disable** (re-enabling them again if nothing changes). This is potentially quite a risky process because you could switch off an essential system component, so try to focus on devices that typically cause DPC latency, such as the aforementioned network cards, as well as 'gaming' soundcards, FireWire devices or anything else that you've added to the machine.

By spending some time doing this, you may end up resolving the issue quite easily. However, for laptop users, the problem is often related to the battery power manager and, in particular, a system driver called **ACPI.sys**.

live work, frequent DPC latency could mean that your audience may, at best, notice distortion in the output, and at worst, hear complete silence every few seconds.

This is a problem that typically affects PC users more than Mac owners, because PCs are typically built using a combination of parts and peripherals that have been put together by a range of different manufacturers - sometimes these peripherals can run into compatibility issues, and they may feature poorly written

"One of the main causes of DPC latency relates to battery power management"

drivers that haven't been integrated properly or tested alongside each other. This can particularly affect laptop users, as one of the main causes of DPC latency relates to battery power management software and wireless network cards - obvious requirements on modern laptops, notebooks and netbooks.

Diagnosis and cure

So, how can you tell if your machine needs to see a doctor, or if it's just the case that certain settings or third-party peripherals are causing the problem? Well, things like audio dropouts will be occurring quite frequently - ie, not limited to periods when your CPU load is quite high, such as when bouncing down audio. However, it's also sometimes the case that badly coded sound drivers or certain pieces of hardware conflicting with others may produce similar symptoms. Therefore, you should check out the *Does my computer have DPC latency issues?* boxout (right) to ascertain whether or not your machine has a problem. In fact, it would be wise to head there now before moving on...

Once you've identified a DPC latency issue, the next step is to open up the **Device Manager**

in the Windows **Control Panel** and look down the list of all the different devices you're running. Some services can't be stopped, as they're essential to the system, but others can, and sometimes these will be the cause of the

Does my computer have DPC latency issues?

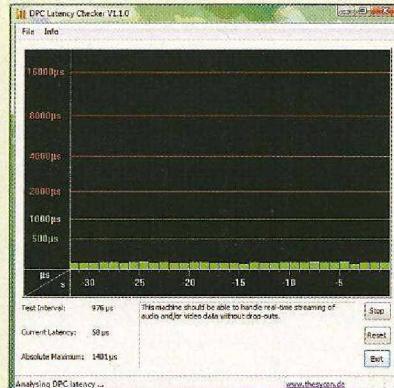


Fig 1 Fingers crossed, this is the sort of result that you should hope to see

As we've discussed in the main text, a machine suffering from DPC latency will exhibit a near enough constant stream of distortion, crackles or dropouts when playing back audio. However, to make the problem that much more difficult to diagnose correctly, DPC latency often gets worse as the amount of processing increases - this could potentially lead you to think that your machine has this particular ailment when it's simply not the case. This is especially true when you hear intermittent crackles or experience occasional audio dropouts, as these can also be symptomatic of other problems, including things like setting your audio buffer too low, for example.

The most effective way to identify if you have a DPC latency issue is to download a

tool by SysInternals, descriptively called **DPC Latency Checker**. You can get it at www.thesycon.de/deu/latency_check.shtml.

Simply run the program and look at the graph that it produces over a period of around a minute or so, noting the height and colour of the bars. The higher these bars are, the worse your problem, and commonly, severe cases of DPC latency will show up as spikes of high latency every so often, as demands are made upon the CPU (see Fig 2 for a perfect example of this). If you find that the bars run into the red area of the graph (>2000µs) regularly, then your system will be highly prone to audio glitches and dropouts. Ideally though, your system should be running more or less consistently in the green, or just touching the amber area of the graph, as shown in Fig 1.

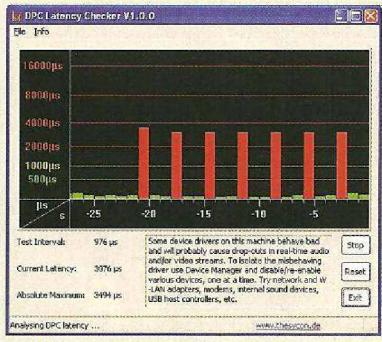


Fig 2 Oh dear, this system has significant DPC latency problems

Prevention is better than cure

Unfortunately there isn't a dead easy method to resolve DPC latency issues. Furthermore, attempting to do so in Windows Vista is much more of a problem than it is in XP. Yet, while many musicians have doggedly stuck with XP, citing its supposedly superior audio performance, new PCs and laptops typically come with Vista pre-installed. This can sometimes cause problems from the outset, and if you're forced to change your operating system, you will naturally incur an additional cost for an XP licence.

However, there are a few things that all PC users can do to help prevent such scenarios. The first step to take is to check that you have the latest drivers for your hardware and BIOS by running Windows Update and getting all of the relevant downloads for your particular machine's peripherals.

Secondly, be sure of your problem before trying to cure it. For example, you can sometimes get carried away adding track upon track to your projects, as well as an army of plug-ins - we've all done it! Therefore, bear in mind that you can freeze certain channels and raise the audio buffer in your DAW's preferences to see if this improves matters. After all, you may just be running your CPU into the ground, rather than actually experiencing DPC latency!

Downloading Process Explorer can help you suspend certain system protocols that may be disrupting your audio

"With this last task completed, your DPC latency will hopefully be drastically reduced"

This driver is also often responsible for several system control functions, such as the shortcuts or custom keys installed by your manufacturer, so it's best to check with them before switching it off. The following approach also has its dangers, so we'd be remiss not to mention that it could potentially cause some instability. However, if you have no other alternative, this technique may help you - do remember to back up any important files before going ahead with it, though!

If the ACPI.sys driver is causing your DPC latency and you're a Windows Vista user, there isn't a straightforward way to switch it off - the process we describe below will only work for machines running XP. In fact, PC musicians are sometimes forced to consider moving from Vista to XP for this very reason (see the *Prevention is better than cure* boxout for more on this), but you should be absolutely sure that you've exhausted all other options before going down this road. Note, however, that all the other advice in this tutorial can be followed by Vista users looking to resolve audio issues.

Tool time

The next step for those running Windows XP is to download another tool, Process Explorer (tinyurl.com/ys2zq2), which is a more complete version of the Windows Task Manager that enables finer control over system processes than the standard application.

On starting Process Explorer, your first port of call is to find the process called **System** within the Process pane on the left-hand side of the application window.

Once you've located **System**, right-click it

and select **Properties** from the menu. Now, within the Properties window, hit the **Threads** tab at the top and scroll down the list until you find **ACPI.sys** - select this, then click the **Suspend** button.

With this last task successfully completed, your DPC latency will hopefully be drastically reduced (of course, you should verify this once again in DPC Latency Checker to be absolutely certain). Note that some machines also enable you to switch off the ACPI.sys process from within the BIOS, so it's worth checking with your PC manufacturer's documentation to find out how to do this, as each machine operates slightly differently in this respect.

Power to the people

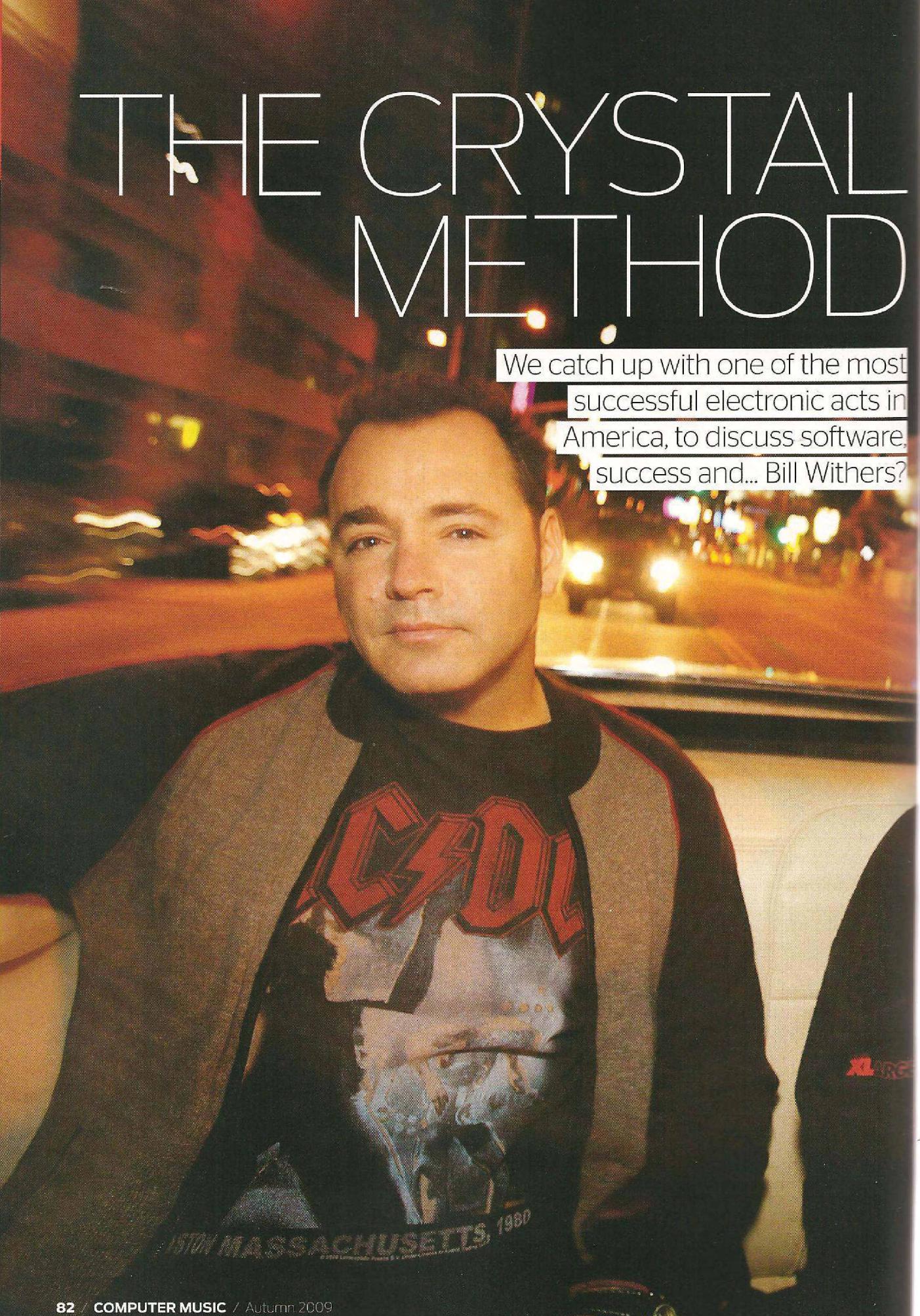
While what we've described is a big problem for PC-based musicians, many manufacturers of laptops and desktop PCs are either unaware of it or aren't doing anything to address it, due to the relatively small number of people that it affects. To make matters worse, more recent versions of Windows have made it increasingly difficult to resolve the issue, and all too many laptops branded as 'Studio' models are incapable of operating in a serious music production environment because of DPC latency.

If you're considering buying a new PC, it's well worth doing some advance research on the models you're looking at - and be sure to check the forums on the manufacturers' websites to find out whether or not DPC latency is a known problem for existing users. If others have flagged up this issue, then our advice is to look elsewhere, as resolving it could potentially test the patience of a saint and, as we say, it's just not well understood by the manufacturers themselves at this point. **cm**



Check that you really are suffering from DPC latency before you try to switch off ACPI.sys and the like

THE CRYSTAL METHOD



We catch up with one of the most successful electronic acts in America, to discuss software, success and... Bill Withers?

> Ken Jordan and Scott Kirkland, aka The Crystal Method, have managed - through sheer brute force and determination, combined with some stonking tunes - to infiltrate the world of underground electronic music as well as more mainstream media. In addition to being highly respected in the hotly-contested dance arena, the band's music has appeared in a ton of films, TV programs, adverts and videogames, much of it licensed from the four albums that they've recorded since they got together more than 15 years ago.

Both the band's studio work and their infamous *Community Service* albums have regularly scored Billboard chart success, and their debut album, *Vegas*, is now a platinum seller and one of the most successful electronic albums ever to come out of the US. *Vegas'* impact was such that the band's second and third albums (*Weekend* and *Legion Of Boom*) attracted several high-profile guest vocalists and musicians. Their fourth, *Divided By Night*, was recently released to rave reviews and also featured a wide variety of big-name guests, including She Wants Revenge singer Justin

Warfield, New Order bassist Peter Hook, Metric front-woman Emily Haines and former Hole/Peaches drummer Samantha Maloney.

"We think that it's our best record yet," says TCM's Ken Jordan. "It's also the first LP that we recorded at our awesome new Crystalwerks studio, which we spent a number of years building, so we were especially excited to get in there. We wanted to step up the songwriting, experiment with more melody and musicality, and include more collaborations. It was somewhat of a long process - the songs grew and changed in a number of ways. But we really enjoyed the process of working with all of the great artists on the album - we're proud of what we achieved."

Crystalwerks is the latest chapter in TCM's somewhat bizarre studio history. Way back when the band started in the mid 90s, their first tracks were recorded in a small bunker that was allegedly built in California during the Cuban missile crisis, aptly called The Bomb Shelter. Even these cramped conditions made for a more sophisticated experience compared to Ken's first setup, as he recalls...

"I started in the late 80s with a Mac, plus a

single synth and sampler - an Ensoniq ESQ-1 and Mirage respectively."

It was a primitive setup, to say the least, so it's a good job Ken didn't really have any artistic aspirations until years later. In fact, he eventually chose a quite different musical path: DJing at his college radio station. Then, in the early 90s, he almost accidentally stumbled back into the world of music production...

"At the time, I just really loved music," he recalls, "but a couple of bands asked me to go in the studio with them and I just fell in love with the process of recording and production. I started learning everything I could and began producing dance music on my own. When I later met Scott, we pooled our gear and talents."

It was to be the start of long and successful career - the duo's intense sound won them fans across the globe. As well as being big sellers in the dance scene, the band have contributed tracks to many videogames and TV shows, including the theme tune to *Bones* and the intro music to *Splinter Cell*. Their music has formed the backbone to several TV ads (including Mazda and Gap) and they also produced the soundtrack to the movie *London*. So even if you



Selected kit list

Ableton Live
Akai MPC3000
Alesis Andromeda 6
Apple Mac Pro
ARP Odyssey and 2600
Avalon 747, 737 and U5
Arturia Jupiter-8V and ARP 2600 V
Bias Peak Pro 5
Clementine Melodyne
Digidesign Pro Tools 8 and D-Command
Elektron Mono Machine
E-MU Vintage Keys, E4XT
Ensoniq ESQ-M
Future Retro 777
G-Force M-Tron Pro and impOSCar
Korg Micro, Mono/Poly and Prophecy
NI Absynth 4, Vokator and Maschine
McDSP plug-ins
Moog Modular and Source
Roland Jupiter 6, Juno 60 and SH-101
Waves plug-ins
Yamaha CS40 and CS80



The Crystal Method's Scott Kirkland (left) and Ken Jordan (right) have travelled the road to success

don't think you know The Crystal Method sound, there's every chance that you'll have at least one of their tracks lodged somewhere in your brain. How have the band managed to garner so much success with their music across such varied media?

"Most of the time, it's the music from our albums that gets licensed," Ken explains. "Something about the music we make has struck a chord with advertisers, music supervisors and other people in that world. We think about the places that we license our music to, but we also understand that people learn about and experience new music in a variety of ways and from a variety of places. From the

One of the most unusual of these was for Nike, where The Crystal Method composed a 45-minute piece of music specifically designed for people who were working out. We told you they were versatile!

The Crystal Methodology

We do, however, want to know about The Crystal Method 'sound', if there is such a definable thing. If you can imagine the high-energy electronic music that rocks its way through a certain type of movie trailer - only better, of course - you've pretty much nailed it. An LA-based DJ once described it as dance music that rocks or rock music that you can

dance to, which paints an even clearer picture. It's definitely not typical of European dance music - it's very obviously from the other side of the pond. So how does a Crystal Method track typically come together?

"We write better music if the melody or song elements come first," Ken

says. "Most people assume that we always start with the drums, but we prefer to get something musical going on first. Scott is much more the composer and musician, and I lean towards being the producer and engineer. We have been working together for so many years now that we've got it down to a science and we're able to complement each other very well... on most days, anyway!"

"There aren't really any tricks - just hard work and a love of making our music," Ken continues. "We do a couple of things that help us get our sound. We try to put all our drum tracks in the

same 'room'. All drum tracks go to the same bus, which receives stereo compression and other effects. We also use a lot of distortion effects on synths and basses - well, on a lot of things, actually - particularly old stompboxes or cool plug-ins like Ohmicide from Ohm Force. That effect really is awesome - it delivers some of the sickest distortion I've ever heard."

"I also love the L3-LL Multimaximizer from Waves," he adds, while on the subject of effects. "The L3 Limiter can focus on certain frequencies, so it helps make everything sound better. We also use the Waves SSL stereo bus compressor on lots of our mixes, too."

Crystalwerks

At the heart of TCM's new Crystalwerks studio is an Apple Mac Pro running Pro ToolsHD. The band also run several virtual instruments, and they have plenty of new and vintage hardware synths patched into their system.

"We used to shy away from virtual synths," Ken reveals, "but they're so good now - they work every time and you don't have to keep taking them to shop for repairs. We really like the Jupiter-8V from Arturia, Absynth 4 from Native Instruments and G-Force's impOSCar."

And while the band clearly have and use a lot of hardware alongside their software, they've also got separate virtual setups on their laptops, so that they can work anywhere and any time.

"Laptops are so fast now, it's crazy," Ken enthuses. "I love it - I always travel with a laptop. It allows us to be on the road, but continue to work whenever we want. Both Scott and I are also big iPhone fans, so that's like having a small computer with you all of the time, too."

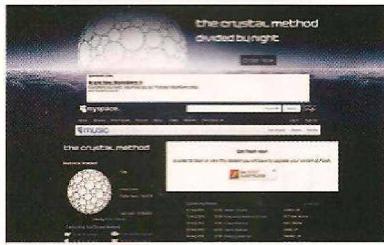
However, with all of this technology comes a whole new set of problems, as Ken reveals...

"Crashes and the constant updating! We have

"Most people assume that we always start with the drums, but we prefer to get something musical going on first"

beginning, we understood the power that having a song in a commercial would have for exposing our music to new people. What we did do was say 'yes' where maybe others wouldn't.

"We've created music specifically for certain projects as well," he continues. "That's obviously a bit more involved, and a more creative process than just licensing your music, but like creating a compelling remix or making an interesting album, it's something that we approach as a fun challenge - making the mood of the music fit the visuals or the ideas that we're provided with. They're all different projects, but also fun."



The Crystal Method see internet sites like MySpace as essential for communicating with their fans

The technology explosion

In the 15-plus years that The Crystal Method have been together, advances in music technology have obviously been enormous. But how does Ken see the wider impact of technology on music as a whole?

"I've always thought that wider access to music production tools is a great thing. Money should never be the reason that good art is not made. On the down side, however, there's also lots of crappy music being made."

"The internet is also obviously a wonderful thing," he adds. "It's amazing how much the music industry has changed in such a short space of time. We are always interested in the new platforms that enable us to connect with our fans, so we have MySpace and Facebook pages, plus a Twitter account. Sometimes it's a lot to keep up with, but in the end, interacting with your fans is what it's all about."

"The computer is really just a glorified recorder. You still have to write good music and have talent"

a very intricate system of backing up our data at our studio. The systems have to run like clockwork to keep everything safe."

So is there anything else in the world of software that the guys think could be made better or else newly developed?

"Better tape saturation emulation," says Ken. "I haven't really heard a great one..."

Ultimately though, Ken firmly believes that it's important not to put too much emphasis on the technology behind the creative process, but instead to concentrate on the human element...

"The computer is really just a glorified recorder," he opines. "You still have to write good music and have talent. I think we would still basically make the same records without computers. But one of the biggest changes has been in storage and the price of storage. One gigabyte used to be huge, and now one terabyte is not enough. The cost and size of data storage has revolutionised our whole working process. We used to record different takes to a DAT tape, then sample the DAT - it was a long and tedious pain in the ass. Now we can record all day to Pro Tools tracks and never worry about running out of hard drive space, plus you can easily move from song to song and bring everything back

exactly the way you left it."

And how have the band changed their live approach? Do they try and replicate their studio setup on the road?

"We do," Ken replies. "It's pretty complicated: two MacBook Pros, both running Pro Tools - one acts as a slave, locked with the word clock and MIDI time code. There's so much that can go wrong with our setup, but we are getting the system down pretty well."

On the production front, what advice does Ken have after spending 15 years at the cutting edge of technology?

"Master the gear that you already have," he says, "and don't worry about buying all of the latest stuff. Develop a unique sound and own it. We've remixed songs from many different genres, and the end result is always something new and different, but we always try to basically make a good Crystal Method track - although it will feature some of the key elements of the track that we're remixing. Creating a good remix can be just as much of a process or a challenge as creating a brand new track - you're often basically building something new from the ground up."

Gazing into the Crystal ball

The Crystal Method clearly have the power and clout to attract some of the best musicians in the world to work on their records, so who is it that they really admire out there?

"Radiohead," says Ken. "I remember when I first heard *Creep* and it totally blew my mind. I love the way they perfectly blend pop, rock, alternative and electronic. They never stop amazing me and I absolutely love seeing them live - one of my favourite concerts of all time was seeing them at The Hollywood Bowl, for example. But one of the people we've always wanted to work with is Bill Withers, as we've always loved his voice, his song writing, his style - and we hear that he can still sing! We tried getting in touch with him again when we were putting this album together, but it didn't end up working out. Some day, though!"

The Crystal Method have so many different fingers in so many different pies that they surely have some great advice for people who aren't making money from selling music any more.

"Well," says Ken, "artists will have to just concentrate on making money in all of the other areas of the industry, like shows, merchandise, licensing their music and so on. The job has changed somewhat, or certain aspects of it have, but you just have to keep moving on."

And as for actually making music, Ken's message is clear...

"Be passionate," he says. "Master your gear and your sound, and always work hard."

Ken and Scott will obviously have to follow their own advice over the next few months, with their massively busy schedule coming up...

"We have more touring to support the new album, *Divided By Night*," reveals Ken. "We're out on the road in the US and are looking forward to hitting Europe shortly. We've never played some of these great festivals before and that will be very exciting, especially since we haven't brought the live show to those parts in quite a while. Beyond that, we've just shot a new video for our song *Come Back Clean* that should be making its way out in September, along with an awesome remix from Kaskade. And after all that's finished, it's time for surfing on the beach in Costa Rica!" **cm**

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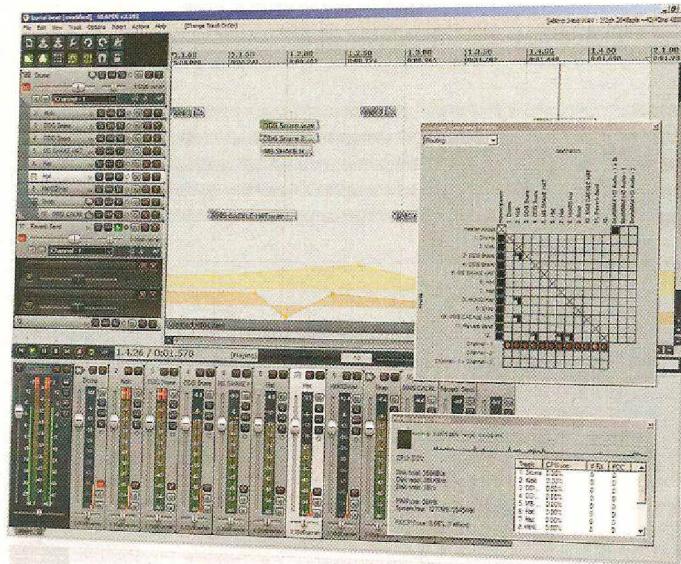
MUSIC IN TWO SIMPLE STEPS
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The screenshot shows the ClickProduce website interface. At the top, there's a navigation bar with links like Home, Download, Music & Tech, Techno & Pop, Rap, Hip-Hop, Classical, Hard Dance, Drums, Synth & Keys, and Support. Below the navigation, there's a large banner with the text 'Music in two simple steps...' and 'FULLY DOWNLOADABLE'. To the right of the banner, there's a section titled 'Recommended Releases' featuring four thumbnail images for 'DRUM FRACTIONS', 'URBAN INSPIRATION', 'DEADMAU5', and 'TENHOUSE & PROGRESSIVE HOUSE PHASER'. Further down, there's a 'Featured New Releases' section with several smaller thumbnail images and titles like 'FLUID: Urban Construction Kit', 'Urban Inspiration', 'Techno & Progressive House Phaser', and 'Drum machine: Modern Samples'.

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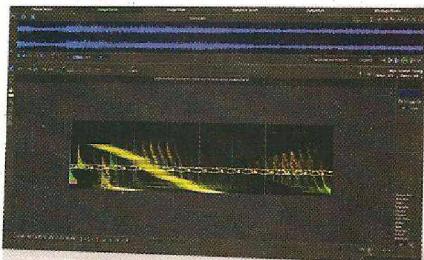
cm/reviews

The latest computer music gear tested and rated!



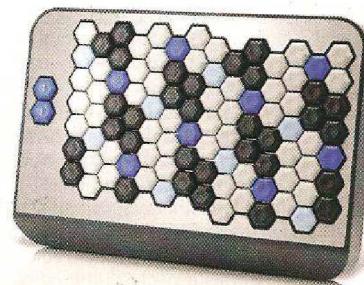
90 COCKOS INCORPORATED REAPER 3

Can the new version of the premier shareware DAW scythe its way through the competition?



92 U&I SOFTWARE METASYNTH 5

Audio meets art as this far-out sound design playground receives an update



98 C-THRU MUSIC AXIS-49

We flex our digits with this keyboard for people who can't play the keyboard

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Our promise

We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

What the ratings mean

- 1-4 Give it a miss. A seriously flawed product that should be avoided
- 5-6 Not too shabby. It's an OK product, but not without faults
- 7 Good. Definitely worth considering
- 8-9 Very good. A well-conceived and executed product. Recommended
- 10 Excellent. Essentially faultless



Awarded to products that challenge existing ideas and do something entirely new



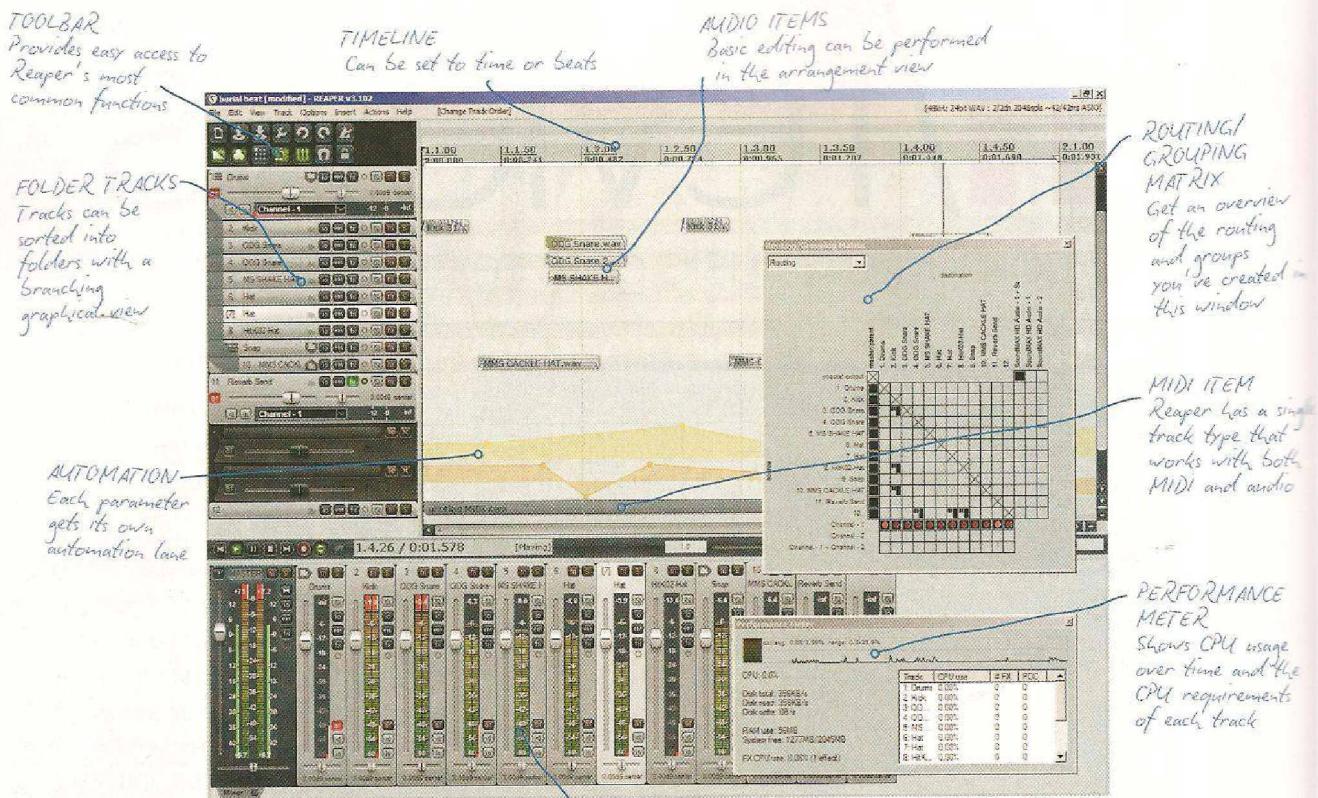
A product has to really impress us with its functionality and features to win this one



If the product exceeds expectations for its price, it will receive this gong



In the opinion of our editor, the best product reviewed in the magazine this month



Cockos PC MAC Reaper 3 \$60

The shareware DAW reaches v3, boasting yet more high-end features for MIDI and audio production - but can it cut down the competition?

System requirements

PC Windows 98/ME/2000/XP/Vista/7

Mac Mac OS X 10.4

Test system

PC Intel Core 2 Duo 6400 2.13GHz,
2GB RAM, Windows XP

When we first reviewed Reaper in 2006, it was the ugly duckling of DAWs: MIDI functions were best described as basic, there was no audio editor, and it had a rather poor interface aesthetic. Subsequent versions have seen improvements on all fronts, and while there's still no built-in audio editor, pretty much every other aspect has improved enormously. So, before we look at the new features and enhancements, let's run over the basics for those who have yet to encounter the Reaper...

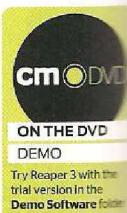
Essentially, Reaper works along much the same lines as Cubase, Logic, etc, in that it uses a horizontal track-based approach to audio and MIDI sequencing. The software has a single main screen that includes the track view at the top, with an area at the bottom where the mixer and various other windows, such as the routing matrix and performance meter, can be docked. The track window also has its own slightly simplified version of the mixer, and here buses can be set up using a track nesting system. All other graphical elements - such as track routing windows, plug-in interfaces, and so on - are displayed in separate floating windows.

Harvest season

So far, so ordinary, but Reaper has plenty of attributes that make it worth considering over more established offerings. For starters, it's got a very light system footprint - the installers for each format are only a few megabytes, and the software can even run from a USB stick. And unlike most similar programs, Reaper loads incredibly quickly, so in just a few seconds you can go from the desktop to recording.

Another advantage of the software is its flexibility. Reaper has sophisticated audio and MIDI routing capabilities, plus its tracks can don't have to be assigned as either audio or MIDI - a single track type handles both, making it easy to set up audio effects that output or receive MIDI data, sidechain routing and so on.

As the small installer size indicates, you don't exactly get a huge library of sounds to work with - the included instruments, aside from the useful but basic ReaSamplomatic 5000, are simplistic at best. The program does come with some decent effects in the form of the ReaPlug FX suite, including delights like a sidechainable compressor and gate; multiband compression



"The routing and modulation features in particular could make owners of many other DAWs jealous."

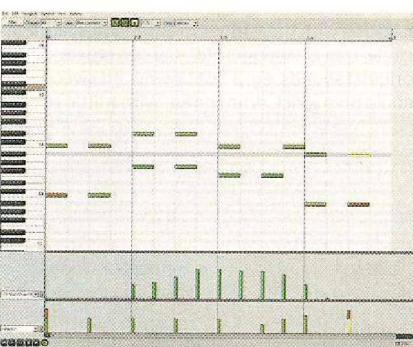
and EQ, each with as many bands as you like; an unlimited tap delay; and an FFT-based dynamics processor. These effects might not be packed with character, but for bread-and-butter processing, they certainly do a good job. Also included are literally dozens and dozens of effects created with Cockos' Jesuscomics effects development environment (which comes with Reaper), enabling you to create and compile your own effects, or edit the included ones.

Cockos have added tons of new features to Reaper since we reviewed v2 in **cm123** - far too many to even list - so we'll cover the most important here. The biggest change is that Reaper is cross-platform these days, and will run on PPC and Intel-based Macs, which increases the software's already impressive portability. Reaper really is an app that you can take anywhere and use on practically any system.

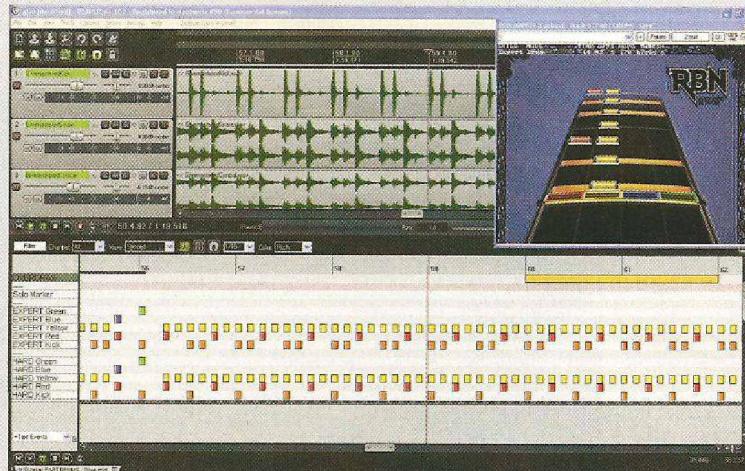
Other important additions include élastique 2.0 algorithms for improved timestretching; transient-based beat-slicing; Rex2 file support; per-take volume, pan and mute envelopes; a parameter modulation system that employs audio levels or a built-in LFO; automation lanes; nested track folders; improved MIDI editing; and a more attractive interface. These new features go quite some way to ensure that Reaper competes with its rivals, and in many respects it's a cutting-edge piece of music software. The routing and modulation features in particular could make owners of many other DAWs jealous, and the clever way in which the tracks work is both elegant and flexible.

Reap what you sow

On the downside, the editing of audio tracks and MIDI data isn't as sophisticated or slick-feeling as in, say, Cubase or Logic, and we could say the same of the included plug-ins too. The lack of comprehensive quantise and groove options is another drawback, as is the continued absence of a built-in audio editor; however, the audio tracks themselves offer a useful degree of



Thankfully Reaper 3's MIDI capabilities are a vast improvement on previous incarnations



Fancy selling your own tunes for Rock Band 2? Well, with Reaper, you'll soon be able to!

Rockin' with the Reaper

Though it's currently a relatively obscure bit of music production software, Reaper is about to get a whole lot more famous. Harmonix, creators of the Rock Band videogame franchise, have announced a plan that will enable anyone to create Rock Band-playable content from their own tracks using a special Reaper-only add-on. Using this, you can produce a track in Reaper (or just import stems from any other DAW) and turn it into fully interactive Rock Band content.

Finished tracks can be uploaded to the Rock Band Network (currently in testing phase, but scheduled to go live later this year). Once they've been

voted for copyright infringement and approved by the Rock Band community, they can be bought by other users for 80, 160 or 240 Microsoft points. As yet, there's no PS3 support for this system, and users will need an Xbox 360 and Rock Band 2 to test their tracks. Also, the uploading software, Magma, is currently Windows-only, though Intel Mac users can of course run it via Boot Camp.

Rock Band Network is a very big deal that could potentially open the floodgates for a slew of user-generated game content, and its reliance on Reaper will certainly throw some welcome limelight on the software.

editing functionality, and it is of course possible to assign an external audio editor that will open automatically when an audio region is double-clicked.

Despite its drawbacks, we're sure that many will find Reaper 3 to be their favourite DAW. It's a deep piece of software, and true mastery will depend on getting your teeth into the hefty 410-page manual and long list of keyboard shortcuts. The concentration on the latter, rather than convoluted menus, alongside its resource-efficiency and nonexistent copy-protection (you can install and run it on any machine - no dongles or codes necessary) make it the ideal DAW for music-making on the move. And even if you don't learn it inside out, it makes for an excellent musical sketchpad. Above all, Reaper is a thoughtfully-designed piece of software at a sensible price, and is definitely worth checking out, even if you're happy with your current DAW. And since the evaluation version is complete, fully functional and non-expiring, there's really no reason not to give it a go. **cm**

Contact support@cockos.com

Web www.reaper.fm

Info Full commercial license, \$225

Alternatively

Steinberg Cubase 5

cm137 >> 9/10 >> £499

Includes instruments, effects and sounds, and tons of power

Logic Pro 9

cm143 >> 10/10 >> £399

This Mac-only DAW has amazing plug-ins and a slick interface

Verdict

For Quick to load

Very portable and light on resources

Extremely reasonable price

As deep as you like

Regularly updated

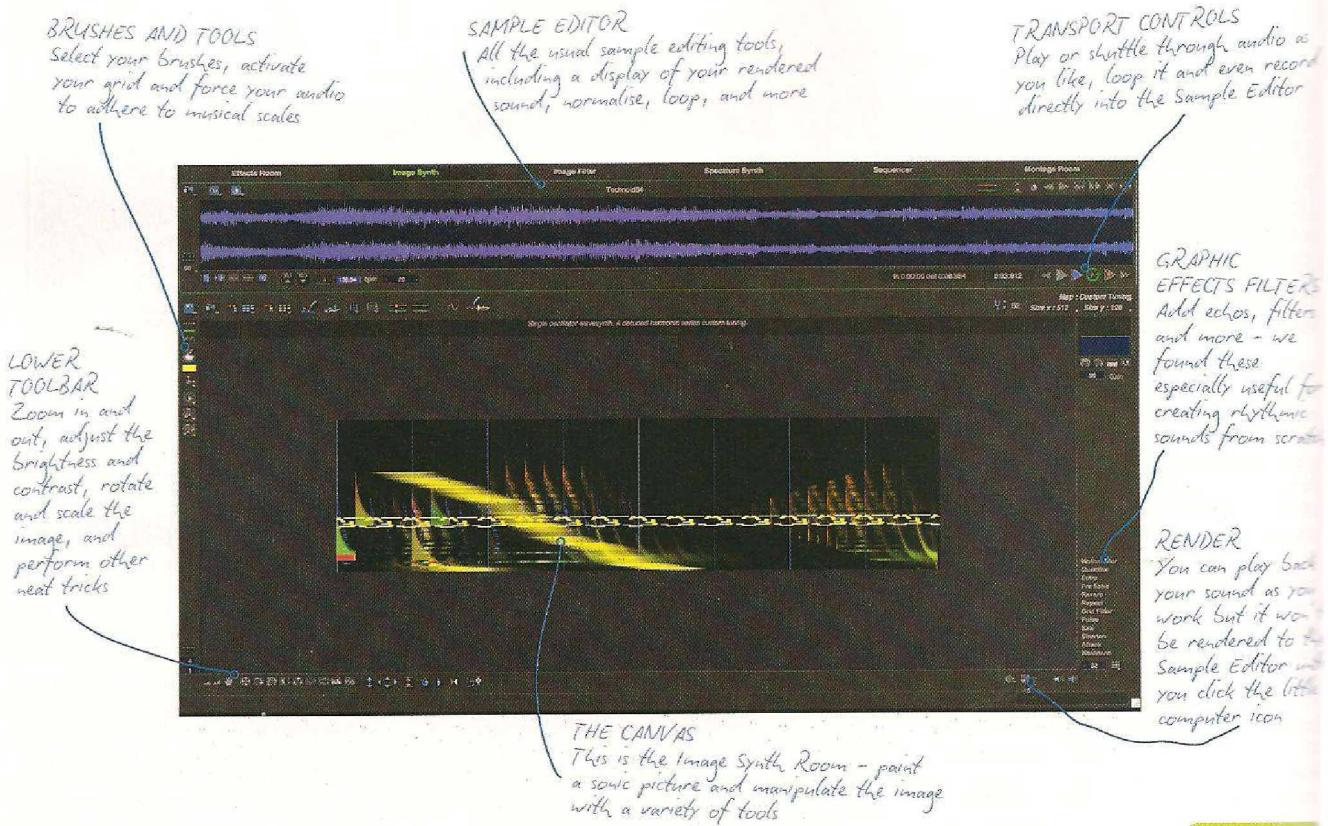
Against Still no audio editor

Very basic instrument suite

Quantisation options are primitive

Major DAW manufacturers have good reason to fear the Reaper. It's a viable alternative with some distinct advantages

9/10



U&I Software MetaSynth 5 \$599 MAC

This sound designers' secret weapon gets an overhaul but retains its trademark visual approach - see the music, maaan!



System requirements

Mac OS X 10.4

Test system

2.4GHz Intel Core 2 Duo iMac,
4GB RAM, Mac OS X 10.5.7,
M-Audio Fast Track Pro

Mac mini 2GHz, 4GB RAM,
Mac OS X 10.5

> For those who are familiar with MetaSynth, the name conjures up images of vast sonic playgrounds where sounds are rendered with brush and colour. The MetaSynth user does not turn knobs on a photographic reproduction of a venerable old synth, but instead 'paints' sound using brushes and tools that bridge the gap between art and audio.

The improvements in v5 are too numerous to cover in two pages, so check out the demo on the disc, which includes full documentation and a complete 'what's new' list.

The action takes place in any of six 'rooms', each of which is devoted to a specific type of audio design or manipulation. Each room is depicted in the lower half of the GUI, with the upper portion always showing the Sample Editor. Anything created in the rooms can be rendered to the Sample Editor, and thus made available to other rooms for further tinkering.

Get a room

Much of your time will likely be spent in the Image Synth Room, which is best described as a super-high resolution piano roll - each vertical

pixel on the canvas represents an oscillator of a different pitch, with the brightness determining volume. The tuning map (ie, key and scale) can be selected from a menu, and you can define your own such maps. The default oscillator is a sine wave, but you can use any of MetaSynth's instruments as a source (see boxout for more).

You might already know that photos can be imported into the Image Synth Room. And by painting with the various drawing tools (eg, line, circle, curve, smudge, etc) you can create original sounds, eg, a fast downward sweep could give a kick drum noise. With a little effort, complete soundscapes, phrases and rhythms can be crafted, and rendered out for use in any sampler, including MetaSynth's own built-in Sampler and MultiSampler instruments.

Notable Image Synth improvements are that the Fit To Scale command provides a bunch of new scales, and there are new drawing tools designed specifically for filters and percussion.

The Image Filter works almost exactly like the Image Synth and shares pretty much all of its improvements. Here, the image is instead used to filter a sound (eg, paint only across the top)

"They now feel more like complete synths in their own right"

the canvas and you'll hear only treble sounds).

The Effects Room offers 25 effects for your processing pleasure, ranging from simple volume, pan and pitch tweaks to more exciting options like Waveshaper, Reverb, Resonator, Harmonics, Inertia, Stretch, and more - certain parameters can also be modulated via a freely drawable envelope curve. Additions for v5 include a Convolution parameter for the Crossfade effect and a Render To Disk command that allows you to overcome v4's six-minute file length limit by writing straight to a file.

Roll with it

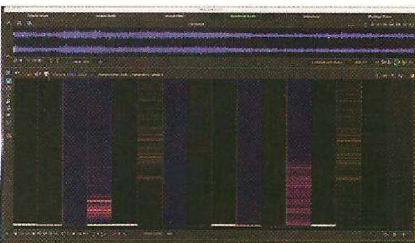
A simple piano roll is found in the Sequencer Room - it's handy for knocking out quick tunes with sounds created elsewhere, but you can't import standard MIDI sequences, annoyingly.

The Montage Room is a sort of multitrack MetaSynth process recorder and sequencer, where you cobble together compositions from your MetaSynth creations. Version 5 has some serious new goodies in tow, including support for up to 24 tracks and new effects in the form of PingPong Echo, Reverb, Vox Enhancer and some EQs. Multipoint envelopes are now provided, as is stereo recording.

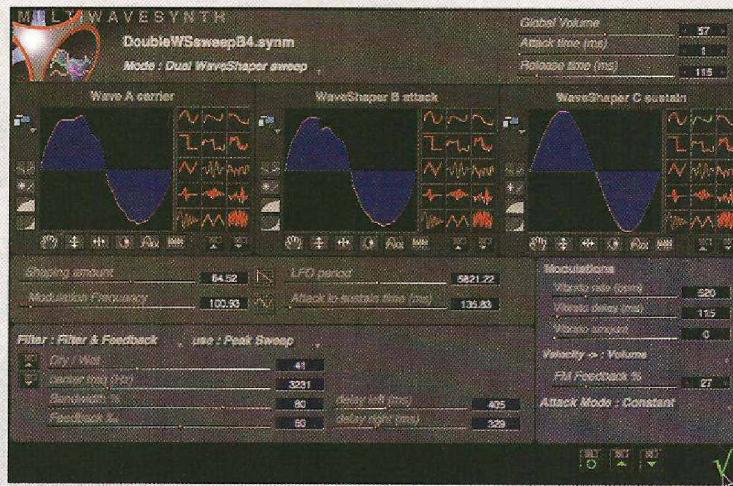
Finally, there's the Spectrum Synth, MetaSynth's FFT-based resynthesiser, which breaks sounds into chunks of harmonic content called 'spectrum events' - this differs from the Image Synth because the frequency resolution is far finer (whereas the timing is less so). Sounds can be imported, analysed, sliced and rearranged in time and pitch. New for v5 are Time Blur, which smooths event transitions, and the frequency-smearing Pitch blur.

As you can see from the *Instrumental imagery* boxout, MetaSynth's instruments are on the receiving end of some of the most dramatic improvements, and they now feel more like complete synths in their own right, rather than merely convenient playback tools.

As an example of MetaSynth in action, you might use the Image Synth room to create a descending minor tonal stab, then shuttle it over to the Sequencer Room to create a riff, using the stab loaded in a Sampler instrument. Next, bounce the riff into the Effects Room and apply waveshaping and modulating echoes, then dump that into the Spectrum Synth to reorder the spectrum events and slide their frequency



Resynthesis, reanalyse and rearrange audio using MetaSynth's spiffy Spectrum Synth



MetaSynth's MultiWave Synth gets some significant new features in version 5

Instrumental imagery

MetaSynth's Image Synth and Sequencer rooms play back your painted pixels and sequences using the built-in instruments. There are a handful to choose from, including the simple single-oscillator WaveSynth, the granular/wavetable GrainSynth, and MultiWaves, which is a wavetable synth that uses FM, phase distortion and pulse width modulation to shape a trio of wavetable oscillators. Additionally, you get the single-layer Sampler and a Multisampler for when you need more complex sample sets.

MetaSynth 5 includes 11 new MultiWaves instrument modes specifically designed for electronic

music styles. New modes range from Waveshaper LFO to FM Sweep and Cascade to Pulse Width Modulated and more besides. Velocity mapping is now available, enabling velocity to be lashed to various target parameters such as modulation amount, FM feedback, modulation frequency and more.

Other goodies include added tools for the Wavetable Editor - copy, paste, reverse, ramp, normalise and both low- and high-pass filtering are provided. The new effects added to the Montage Room also make an appearance here, where they can be applied to the Instrument outputs.

content to create something wild and esoteric.

MetaSynth 5 remains an OS X-only affair, but is at last a Universal Binary, fully compatible with Leopard and multi-processor machines. It now supports 32-bit files and sound buffers are likewise 32-bit, with 64-bit floating point math throughout. Conveniently, MetaSynth now loads MP3s (though it can't save them), and can read and write AIFF, SD2, CAF and WAV formats. Moreover, recording has been added to the Sample Editor and the Montage Room.

A few things have been axed, though, such as support for dual mono files and MetaSynth 2.x files. And the GUI is still rather clunky and more than a little old school - there's only one level of undo, for instance.

Subtle highlights

MetaSynth is a costly, complex and sometimes confusing program, but it's undeniably special. Any painter will tell you that the subtle finishing touches bring a picture to life, and while MetaSynth was already a modern masterpiece, the tasteful strokes added in this version make it all the more desirable.

Web www.uisoftware.com
Contact support@uisoftware.com

Alternatively

**Sonorous Codes Atmogen
cmN/A >> N/A >> €229**

This little gem offers a similar experience for Windows users

**Adobe Audition 3
cm126 >> 8/10 >> £317**

Has some Photoshop-esque graphical manipulation features

Verdict

For Improved audio resolution

Multiprocessor support

Significantly improved instruments

Painting with sound can be addictive

Against No MIDI import

Only one level of undo

Clunky interface

Takes dedication to master

It's not without its shortcomings, but MetaSynth's unique visual approach will continue to thrill intrepid sonic explorers

8/10

Sugar Bytes Eloquence €99

PC MAC



A sweet MIDI step sequencer with performance options aplenty? Step right this way...

> Many DAWs offer standard arpeggiators and chord generators to 'bring life' to your MIDI sequences, but often these plug-ins are lacking on the usability and flexibility fronts. This is where Sugar Bytes' Eloquence comes in - here we have an all-in-one MIDI sequencing tool designed with performance firmly in mind.

At its core, Eloquence is a step sequencer. In fact, it's not just one but five, each covering a different type of MIDI data and all running alongside each other. For each step (say, a 16th-note), you designate a pitch offset in the topmost sequencer, select its velocity in the one below and the gate time (note length) in the third. It's in these top three sections that you'll spend the bulk of your time, programming riffs and arpeggios, then assigning them to 'patterns' - hit a note and the selected pattern is pumped out, using that note as the root.

Pitch selection also features a scale mode, so whatever you play, it'll be in the right key - the notes will simply be shifted up or down within your pre-selected scale. We discovered a few 'outside' notes creeping in when using the Aeolian scale, but Sugar Bytes assure us that this bug will be fixed in the next point update.

Performance enhancers

The lower two sequencers are more unusual. Sequencer 4 is the Performance section and is divided into a further five rows, which offer octave shift, pitchbend curve, chord generation, roll (for baroque-style ornaments) and randomiser (for velocity, pitchbend and more). The final piece of the step-sequencing puzzle is the CC modulation section (see boxout).

Moving across to Eloquence's right-hand panel, we have the Action section, which is a bank of eight buttons that you can hit to funk up and groove with your sequences in real time. The Gate Time button, for example, slams all your gate times to one step long, while Velocity Gate lets only the strongest notes through.



Elsewhere on the right is Eloquence's onboard synth, which is a single-oscillator affair, packing a basic filter, some envelopes and a delay. While you'll probably opt to use sounds from a dedicated third-party synth (by employing your DAW's routing to send MIDI from Eloquence to the destination instrument), this native offering is fine when you're in a hurry.

Patterns and actions can be selected via MIDI keys and there's also a selection of sequence presets. Even so, Eloquence isn't a tool that you can quickly dip into, as sequence programming, by its very nature, takes time, and the interface can sometimes feel a tad fiddly. Other criticisms would be the lack of a proper note tie feature and the fact that, while you can set loop start and end points, you can't set an independent start point (ie, to play a complete sequence, then loop the end few steps).

Still, minor grumbles and wishful thinking aside, Eloquence has a lot going for it. Put the work in, and it'll make live sets a joy, adding genuine life and sparkle to your MIDI parts.

Contact info@sugar-bytes.de
Web www.sugar-bytes.de

CCing the light

The final sequencer in Eloquence is labelled Modulation, and is where things really get interesting. Each step accepts a value of 0 to 127, pumped out to a MIDI CC of your choosing. It's the sequencing equivalent of an LFO - but the fact you can draw in your own changes, rather than being tied to a preset curve, means your filter sweeps and tremolo rate tweaks can be far more exciting. While you'll probably start off using Eloquence's Modulation section to

effect simple cutoff changes and the like, the potential of assignable CC data is huge. You can actually run several Modulation sequences simultaneously - up to eight - with all of them controlling different CCs.

Thinking outside the box a little could give spectacular results at live shows - MIDI data can be used to control lighting rigs, too, so you could set up strobe 'stabs' perfectly synced to the riff you're playing, or even - dare we say it - trigger pyros!

System requirements

PC 2GHz CPU, 512MB RAM, Windows XP/Vista, VST host

Mac 2GHz CPU, 512MB RAM, OS X 10.4, VST/AU host

Test system

Mac MacBook Intel Core 2 Duo 2GHz, 2GB RAM, OS X 10.4.11, Ableton Live 8

Alternatively

Sugar Bytes Consequence
cm136 >> 7/10 >> €149

A chord sequencer with a three-part multitimbral ROMpler

Native Instruments Kore 2

Software Edition

N/A >> N/A >> €199

Performance workstation featuring a step sequencer and arpeggiator

Verdict

For Great fun to jam with
Geared for live use
Versatile modulation section
Highly customisable sequences

Against Slightly fussy interface
A few minor bugs and omissions

Eloquence blows away bog-standard arpeggiators and the like, and when it comes to live work, it really shines

8/10

Vengeance-Sound €99 Multiband Sidechain

This dual-band delight kicks off the Vengeance Producer Suite range of dance-oriented plug-ins

> "How do I do sidechain compression?" – this has to be one of the most common production-related queries we get here at **cm**. The technique in question often involves tricky routing and the use of a sidechain-capable compressor to give an effect where an instrument 'ducks' in level when another sound (usually the kick drum) plays – this gives a cool 'pumping' effect that's been popularised in dance music by Daft Punk, Benny Benassi and others. In response to this, Vengeance-Sound have branched out from sample discs to produce their first plug-in, Multiband Sidechain (MBS), touted as a quick, easy and flexible solution for achieving tight sidechain pumping.

The most novel feature of MBS has to be the dual-band capability described in the boxout, though you can use it in plain old single-band mode by setting the crossover frequency to its minimum value. The default mode in MBS is Host Sync, and this causes the incoming signal to duck on every quarter-note, in time with the tempo of your song – if you're making four-to-the-floor dance music, then this is likely just what you want. There's full control over the envelopes used to achieve the ducking, with knobs for attack, hold and release times; curve shape for attack/release; and a Strength knob to set how much the signal is ducked by. The envelope curves are shown in the display area and you can also drag the nodes to tweak them.

Ducking brilliant

To trigger the envelopes on something other than quarter notes, you can use the Audio or MIDI modes. The latter involves routing MIDI to the MBS plug-in – when a note-on is received, the ducking is triggered, with MIDI velocity further influencing the strength of the ducking. All we miss is the option to hold the envelopes in the ducked position while the MIDI note is held.

Triggering from audio is also a cinch: if you want to use, say, the kick drum to duck your



bassline, you'd place MBS on the bass track, and the accompanying Transmitter plug-in on the kick channel. You can only have one Transmitter per project, but as Vengeance point out, it's best to use MIDI or Host Sync modes anyway, as they give 100% accurate timing.

The slick GUI suits the dance-oriented Vengeance vibe perfectly (although the high refresh rates caused audio break-up in larger mix projects), and other niceties include eight display modes that can show various combos of spectral analysis and low/high envelope curves, and a dual-band EQ (which we wouldn't miss if it wasn't there, but it's handy enough).

In use, Multiband Sidechain is right on the money, with convincing results to be had in no time. It's easier to achieve a specific pumping 'feel' than with a regular sidechain compressor, because you deal directly with the amplitude envelope, and with more subtle settings, it's a neat mixing tool, too. To conclude, it seems that Multiband Sidechain is our new stock answer to the question that kicks off this review. **cm**

Contact: info@vengeance-sound.com
Web: www.vengeance-sound.com

Multiband-it

Multiband Sidechain has two envelopes with independent settings, and these operate on separate frequency ranges. You can, for instance, make the bass pump hard (to get it out of the way of the kick drum, say) while keeping the treble consistent. By default, MBS uses the clean-sounding Digital Filter to separate the bands, but there's a Notch Filter mode, too, that causes unusual phase shifts and cancellations, for special effects and creative applications.

The multiband mode works well, but the crossover filters aren't as steep as we'd like – for example, if you set the crossover to 200Hz and solo the upper band, it sounds pretty much like the full-range mix – it certainly doesn't separate the frequency ranges as we expected. We do hope that Vengeance improve this in future – they've already bashed out five updates with fixes and new features in the plug-in's first month, which is a very encouraging start.



System requirements

PC PIII 800MHz, 512MB RAM, Windows 2000/XP/Vista, VST host, USB port for Syncsoft dongle

Mac G4 800MHz/Intel 1.5GHz CPU, 512MB RAM, OS X 10.4.8, VST/AU host, USB port for Syncsoft dongle

Test system

PC Intel Core i7 920, 3GB RAM, Vista Ultimate 64, Steinberg Cubase 5

Alternatively

AraldFX StormGate 3
N/A > N/A > \$59
Three-band rhythmic gate

FabFilter Pro-C
cm19 > 10/10 > £219
Compressor with a fantastic sound, visual feedback and sidechaining

Verdict

For It's a doddle to use
Slick, well thought-out interface
Fine control over ducking envelopes
Great for pros and beginners alike

Against No MIDI note-hold mode
Crossover filters not steep enough
High refresh rate can cause problems

An impressive debut that serves a specific purpose in a most elegant manner

9/10

Modartt Pianoteq 3 €249

PC MAC LINUX



Tired of devoting half of your hard drive to your grand piano plug-in of choice? Here's the alternative...

> When the first version of Pianoteq arrived in 2006, it broke the conventional mould. At that time, all of the high-spec virtual grands were sample-based, but Modartt's software generated its sounds in real-time, giving it several distinct advantages...

For starters, the hard drive footprint was tiny - 20MB as opposed to tens of gigabytes - and RAM demands were correspondingly low. The developer also pointed out that, while the sound of samples is inherently 'static', a modelled instrument can more easily react to how it's played. Loading times were fairly instant, too.

These same benefits apply to v3, which runs both standalone and as a plug-in (there's even a Linux version) and adds several fresh strings to its soundboard. Most notable among these is the new acoustic model, which gives you the ability to position up to five mics around the piano and raise/lower its lid. The mics can be mixed over a maximum of five output channels, and for headphone use, there's a handy binaural mode - instead of moving mics, you can adjust the position and even the size of a virtual head.

Grand designs

More immediate gratification comes in the form of two new grand piano models: C3 and M3. The C3 is the warmer of the two, making it better suited to classical music, while the harder M3 works for more contemporary styles. Both sound terrific and are engrossingly enjoyable to play, rendering any argument over whether it's possible to effectively model a piano redundant. The only slight disappointment is that there isn't an upright model included.

Each piano comes with several presets that take advantage of the new acoustic model, and you could get your money's worth from Pianoteq 3 without ever going beyond them. However, should you wish to create custom instruments, you're given ample opportunity. As before, Tuning, Voicing, Design, Equalizer,



Velocity Response, Output and Effects sections are all available, each containing relatively self-explanatory parameters. New to Pianoteq 3 are the Tremolo and Limiter effects, the former being particularly useful when combined with the new electric piano and vibraphone instruments - see the boxout for more on these.

If Pianoteq wasn't quite the finished article back in 2006, it certainly feels like it now. It sounds and looks better than ever (the interface has been given a bit of spit and polish) and the aforementioned advantages that stem from it being modelled rather than sample-based simply can't be ignored. Factor in the ability to expand the product with both acoustic and electric sounds (in addition to the commercial add-ons, there's a range of free ones) and you've got what feels like the most attractive piano software currently on the market. cm

Web www.pianoteq.com

Info Electric piano/Vibes add-ons, €49 each

Jack of more trades

The most intriguing addition to Pianoteq 3 is the optional Electric piano expansion pack. We tested the Rhody R1 and Wurly R1 sounds (you probably don't need telling which instruments they're based on) and they certainly don't stretch the software beyond its potential. They're very authentic, in fact, although they don't quite trump those in Devine Machine's sublime OTR88.

Additionally, we tested the Vibes add-on, which provides a couple of eminently

usable vibraphone models, and you can get your hands on the YC5 Rock piano, too.

The add-ons are certainly a selling point for Pianoteq 3, but we can't help feeling that Modartt have missed a trick by not including the Electric piano bundle as standard. This would have made the software's not-inconsiderable price all the more palatable, and the company would have been able to market Pianoteq as a one-stop acoustic/electric piano solution.

System requirements

PC Pentium 4 3GHz CPU, 256MB RAM, Linux or Windows XP/Vista, VST/RTAS host for plug-in use

Mac Intel CPU, 256MB RAM, Mac OS X 10.4, VST/AU/RTAS host for plug-in use

Test system

PC AMD Turion 64 2 GHz, 1GB RAM, Windows XP, M-Audio Fast Track Pro

Alternatively

Front Technologies TruePianos cm12 > 8/10 > £130

Another lightweight option that combines sampling and synthesis

Acoustica Pianissimo

cm136 > 9/10 > £69

Acoustic modelling turns 250MB of samples into a great piano

Verdict

For Great sound
Tiny HD footprint and low CPU usage
Short preset loading times
Fully editable
Electric pianos available too...

Against ...but you have to pay for the
No upright model

With its great sound, simple interface and add-on packs, Pianoteq 3 is a genuine alternative to sample-based solutions

9/10

Vienna Symphonic Library Vienna Imperial £575

The Austrian ROMpler wizards aim to redefine the accuracy and playability of the sampled grand piano

> The Bösendorfer Imperial virtual piano from VSL has been a popular choice for a couple of years, but their latest, Vienna Imperial, aims to improve on it as well as blitz the competition. Based again on the Bösendorfer 290 piano (the 9'6" one with the extra low-end keys), they've sampled the computer-controllable CEUS-equipped model - see boxout for more. Using their new proprietary "piano engine", they've then squeezed the 500GB of 44.1kHz/24-bit sample data into a compact 50GB disk footprint. So what's the story?

Number crunching

VSL's new engine uses lossless data compression, which is decompressed on the fly. Unlike some other VSL instruments, it doesn't come in 'standard' and 'extended' editions; the package comes with all articulations available, including pedal noise, sympathetic resonances and multiple release samples, all taken from three recording positions.

This immense sample set offers up to 100 velocity layers per note, and when you factor in the various articulations, this equates to roughly 1200 recorded samples per key.

The interface has Basic and Advanced pages, with the former offering a selection of mic positions (close, player and audience). The Advanced page has much more, including 3-band EQ; a nice convolution reverb (sourced from the Wiener Konzerthaus in Vienna); stereo width adjustment; and faders to control sympathetic resonance, pedal noise and MIDI velocity response. You can save/load all of this information as presets from either page, too.

Vienna Imperial needs at least 1.5GB of free RAM, but you can save on memory by omitting the soft pedal and/or release stages. You can also reduce the sizeable CPU hit by lowering the Polyphony setting, and there's a handy Optimize feature that tags notes that you're using in your piece and unloads the ones you're not.



Sonically, Imperial is very impressive, exhibiting amazing consistency both from note to note and in terms of velocity. This makes playing pianissimo as seductive as full-on, pedal-down forte. However, such subtleties can easily reveal the limitations of your controller keyboard, and we found VI's MIDI velocity offset very useful in achieving the desired response.

The Bösendorfer itself has quite a rounded mid-range, and although you can tweak this with the onboard EQ, its sound may not appeal to those seeking the crisper tones of a Yamaha or the power of a Steinway - you'd best compare audio demos from different products to be sure.

One caveat is that, although the instrument comes in standalone and plug-in format (VST/AU/RTAS), RTAS support is currently Mac-only. Finally, you can only utilise one mic position at once, unlike, say, Quantum Leap Pianos from East West where you can blend them. Grumbles aside, Vienna Imperial is one of the most consistent sampled pianos we've ever tried and will delight those who can afford it. **cm**

Connect Time+Space, 01837 55200
Web www.vsl.co.at

Dr. CEUS

Fundamental to the success of Vienna Imperial is Bösendorfer's CEUS system, as featured on their computer-controlled grand pianos. This is a very advanced 'player piano', and is capable of replaying pieces from MIDI. Not only that, but it can record and then play back a musician's performance. It achieves this by means of optical sensors that record the hammer, key and pedal movement, with replay coming via solenoids. CEUS boasts a key strike

accuracy of less than 2ms; hammer timings down to a thousandth of a millisecond; release and pedal movements measured in 250 steps per millisecond; and a dynamic resolution so great that Bösendorfer grandly describe it as "infinite".

Such a powerful system has many uses, but from VSL's perspective, it provides them with the ideal method to program, replay and record almost 70,000 samples with a level of consistency not normally possible.



ON THE DVD

AUDIO DEMOS

Our clip demonstrates various mic positions, velocities and reverb

System requirements

PC Core Duo/AMD 3GHz, 3GB RAM, 60GB HD space, Windows 7/XP/Vista

Mac Core Duo (Intel-only), 3GB RAM, 60GB HD space, Mac OS X 10.5

Test system

Mac Apple Mac Pro Dual 3GHz, 3GB RAM, Mac OS X 10.5.5, Logic Pro 8

Alternatively

East West Quantum Leap Pianos cm129 > 9/10 > €451

Four amazing pianos requiring 270GB of disk space

Garrigan Steinway Professional N/A > N/A > \$399

An authorised Steinway piano - cheaper versions are available, too

Verdict

For Amazingly consistent sound
Great playability

Three piano-specific room reverbs
Straightforward, efficient interface

Against No blending of mic positions
On-screen keys are fixed velocity

VSL's use of the CEUS system appears to have paid off, resulting in a premium quality sampled Bösendorfer piano

9/10



C-Thru Music AXIS-49 \$495 PC MAC

An electronic table-top edition of *Blockbusters* this ain't - what we have here is a hexciting, forward-thinking MIDI keyboard

> There are countless MIDI control surfaces out there, but when it comes to actually playing a tune, the piano-style MIDI keyboard remains ubiquitous. However, if you can't get the hang of the 'ivories', there are alternatives, such as C-Thru Music's line of AXIS controllers.

The first in this range was the AXIS-64 (see *Alternatively*), but here we're looking at the new AXIS-49 controller, which is far simpler - it's got 98 keys, octave up/down buttons, a USB port and that's it. The case is made of plastic with an aluminium fascia and feels rugged enough. It has a compact footprint (29cm x 20cm), though at 4.5cm deep, it's not as slim as we'd hoped.

It's a bus-powered unit and should be seen immediately by your OS as a standard MIDI device. However, one of our Vista test systems would not install the AXIS-49 until we installed Vista Service Pack 1 (we heard of at least one other AXIS-49 user with the same issue).

What both AXIS models have in common is an array of hexagonal velocity-sensitive keys that send out a MIDI note when pressed/struck (the AXIS-49 transmits only on MIDI channel 1). They're coloured black and white according to the C major scale (like a piano) and D and G[#] are highlighted in blue. You also get a sheet of stickers with note names to slap on the keys.

The notes are laid out in a scheme called the

Harmonic Table, which ensures a consistent intervallic relationship between cells. For instance, every key has its perfect fifth directly above it. Going up and to the left shifts the interval to a minor third, while up and right gives a major third. This means that chord and scale shapes are the same in every musical key, unlike a piano - see the boxout for more on this.

Stereo typing

Playing the AXIS-49 is not unlike typing on a quality laptop QWERTY keyboard (our only real criticism is that you can't change the velocity response curve). It's easy to slide fingers across the keys and even cover the full four-octave range with one hand! The fact that each note is in two places can be exploited, eg, to harmonise runs using both hands, or using alternating hits for fast/tricky patterns. Of course, it takes years of playing any instrument to become truly proficient - we wonder what some technically adept musicians will accomplish with an AXIS.

To sum up, it's hard to knock the fun and addictive AXIS-49 - it feels good, the price is right and the musically logical Harmonic Table can help bust those mental blocks. **cm**

Contact jacqueline@c-thru-music.com
Web www.c-thru-music.com

Striking a chord

It didn't take us long to get used to the Harmonic Table - after an hour or so, we had the basic chords and scales sussed. One very cool thing about this layout is that the keys making up a basic major or minor triad are adjacent, forming a triangle (playable with a single finger by pressing at the intersection of the keys, although if your fingers are skinny, you might prefer to use three fingers, for greater consistency). Playing a seventh chord is as simple as

adding a cell to the top of the cluster, and C-Thru offer a PDF showing you how to play common chords.

As for scales, and once you've got, say, the major scale pattern down, you can start on different degrees of the scale to achieve minor and other modes. And diminished and whole tone scales are especially simple. One thing to note is that although there are 98 keys, there are only 49 notes - each note is available on two different keys.

System requirements

USB port

Mac USB port

Test system

Fujitsu V5505 laptop, Vista SP1

Mac mini 2GHz, Mac OS X 10.5

Alternatively

Snyderphonics Manta cm144 >> 8/10 >> \$675
Reviewed opposite, this is a more complex hex grid device with a touch-sensitive surface

C-Thru Music AXIS-64 N/A >> N/A >> £978

The 49's big brother, with metal casing, 192 keys, mod/pitch wheel key zones, rotary knobs and more

Verdict

For Good key action
Solid construction
Minimal learning curve
Reasonably priced
Chords/scales are the same in every key
Plug and play...

Against ... If you've got Vista SP1!
Can't change velocity response curve
A slimline model would be neat

AXIS have scored a gold run with this fun logical and computer musician-friendly alternative to the piano keyboard

9/10

Snyderphonics Manta \$675

Hand-crafted hardware that acts as a touch-sensitive canvas for your musical ideas

> Looking a little like Don Buchla's Multi-Dimensional Kinesthetic Input Port for his 200e series synths, Snyderphonics' Manta promises a more musical configuration at a considerably more affordable price point - they're only making 50 units to start off with, but they'll build more if there's demand for 'em. The device is USB-powered and takes the form of a thin, flat, beautifully-designed circuit board snapped into a handmade maple (or walnut) wood frame. On the board itself, you can see the traces for the 48 touch-sensitive, hexagonal sensors, along with four disc-shaped areas that act as triggers, and two touch sliders.

There are no moving parts, but the textured surface of the board gives your fingers some indication of their position. Also, each sensor has an LED beneath it, glowing orange as your fingers brush across the surface - it's a neat effect that looks wonderful in the dark.

The Manta is incredibly responsive, and with no computer latency to hold it back, the LEDs light instantly. But it doesn't do much without a computer - it's a dumb terminal, seen by your system as a standard HID USB device. To get rocking with your Manta, you have to run a piece of interfacing software that sits between the USB connection and your music application, translating your finger strokes into something that music applications can make sense of.

Users of Cycling '74's Max/MSP get their own object that enables Max patches to interact with Manta. Everyone else needs to use a standalone application that outputs OSC and MIDI messages to route to your app of choice. But the software aspect isn't without its drawbacks...

Firstly, the MIDI implementation could be more flexible; for instance, note and CC

values for the controllers are fixed. Secondly, the Manta software is currently only available on the Mac, and that includes the Max object. Windows software is said to be imminent, but you'd best check with Snyderphonics if you work on a PC.

No pain, no gain

However, the Manta is worth the pain. The OSC control is complete, and if you have the ability to use it, the device is immensely flexible. It can send note on, velocity and area data for each cell, with the latter determined by how much of your finger is covering a cell. Manta's coolest feature comes after the initial touch, for it continues to send area data for each sensor. This facilitates polyphonic aftertouch, and there are examples that use it for per-note volume. We'd love to see each sensor controlling the level of a single harmonic in an additive synthesiser!

The sent velocity data isn't related to how hard/fast you hit the cells, but is instead determined by the initial area of your touch - tap the sensors lightly with the tip of your fingers for low velocity triggering and with the flat part to achieve higher velocities. The sliders transmit continuous values and the unit's LEDs can be controlled remotely, providing feedback from your patches/DAW.

The Manta currently suffers from having very little documentation and too few example configurations (Snyderphonics are working to rectify the situation), but there's no denying that it's an amazing device, both responsive and musical, with tons of creative potential. cm

Contact jeff@snyderphonics.com
Web www.snyderphonics.com
Info Walnut model, \$695



System requirements

Mac Intel CPU, USB port

Test system

Mac MacBook Pro, 2.3GHz CPU,
2GB RAM, Mac OS X 10.5

Alternatively

monome one twenty eight
cm130 >> 9/10 >> £410

Only has grid-style toggle buttons, but it has a larger community and thus plenty of available software

JazzMutant Lemur

cm139 >> 8/10 >> €1999

Expensive, but thanks to OSC, it should be able to offer similar functionality to the Manta

Verdict

For Very responsive

Tons of control potential

Musical design encourages you to play

Looks cool!

Against Poor documentation

Small user community

Few applications/patches at present

With an initial production run of only 50 units, the Manta club is an exclusive one - you'll already know if you want in

8/10

Manta applications

Our favourite software for making music with the Manta is a Max patch called Honeycomb, which maps cells to MIDI notes. Press three cells in a pyramid shape, for example, to create a major chord. Add another to make a diamond and you've got a major seventh, while three horizontally creates a diminished triad. It's a little like the C-Thru Music Axis without the formality of real keys. You find yourself gliding your fingers up and down among the paths of

sensors, or circling the left hand over a group while the right plays chord sequences that only the classically-trained could attain on a normal piano keyboard.

Other examples include a Max monosynth where oscillators are detuned according to the surface area covered per cell. Still, if all this sounds too complex, you can still get a great deal out of Manta using the standalone interface application to send MIDI notes to your DAW, synth, etc.

112dB PC MAC

Redline Reverb €149

After flying in the face of convention with soft sampler Morgana, can 112dB compete in the busy reverb arena?

> It truly has been the year of the reverb plug-in, with around a dozen of 'em having popped up in the last six months or so. But while many reverbs opt for convolution-charged ultra-realism or offer separate plate, hall and room algorithms, 112dB claim that their Redline Reverb takes a slightly different approach, with a single core algorithm that you can shape in a variety of ways. But is it really different enough from the competition to make it worthwhile?

As noted, reverbs have been all the rage, so we'll focus here on what makes Redline Reverb interesting, with an emphasis on creating a virtual space. Based as it is on sliders and knobs, the interface isn't going to win any innovative design awards. However, everything can be found quickly enough, and once there, you can choose from different types of knob/mouse response. All the usual controls are here: high-/low-frequency damping, pre-delay, tail modulation, reverb decay times, space size, diffuse settings, bass/treble EQ and mix controls.

We love the logical way that it's all been laid out, though with the standard and vintage fascia colour schemes, it can sometimes be hard to make out some of the settings due to the font. The manual says more skins may become available, so let's hope they arrive soon. On the plus side, however, the floating tool-tip windows make it very clear what you're hovering over.

The stereo balance controls for both the early reflections and the reverb tail are things not normally seen on a plug-in of this sort. Plus, if you decide that you don't like the new setting while turning a knob, you can easily snap back to the original value by moving it close by.

Sounding off

The main selling point of any reverb should be its sound, and one of the things that impresses us most about Redline Reverb is its musicality. It really enhances the material, rather than



fighting for space with it. It's perhaps not the most realistic unit we've ever heard, but complaining about that would be missing the point entirely. Like the top-end digital units of yesteryear, it just sounds gorgeous. To demonstrate its abilities, place it on a vocal channel with its default settings, and you'll immediately get an effect reminiscent of an enhancer - only cleaner and sweeter than most!

We would argue that Redline Reverb is not so fundamentally different as its manual and press preamble would have you believe, but the results are far more important, and its the sound that truly sets it apart. It really is indescribably warm and lush, with a sound-enhancing character, and by offering just one core algorithm with plenty of editing options, it's actually extremely versatile. So, if you want something a little special that can spice up and enhance anything from leads and pads to vocals and effects, or that can be used as an upfront creative effect, then make sure you get your hands on this one. **cm**

Contact: info@112db.com
Web: www.112db.com

It's a kind of magic

A quick glance at Redline Reverb's presets shows what the creators were aiming for, with all but one of the categories named after classic Lexicon reverb units. The resulting sounds aren't far off the mark either, and while we'd hesitate to say that 112dB have entirely captured the magic of said hardware, there's certainly a similar style of reverb and warmth on offer here, and at a price and level of convenience that's hard to ignore.

But how did they achieve this sound? Well, it's all based on the algorithms of a couple of Reaktor ensembles called Rev-6 and Space Master, both created by Martin Zwartjes. These have been reworked and coded by hand, thus greatly reducing the CPU load, and it seems to have worked out nicely. On our 2GHz MacBook, for instance, we could run a dozen instances of Redline Reverb (using the default preset) before the sound started to crackle and break up.



System requirements

PC Intel PIII 850MHz/AMD Athlon 800, 256MB RAM, Windows 2000/XP/Vista, VST/RTAS host

Mac G4 1.2GHz/Intel CPU, 256MB RAM, OS X 10.4/10.5, AU/VST/RTAS host

Test system

Mac MacBook 2GHz Intel Core 2 Duo, 2GB RAM, OS X 10.5.6, Ableton Live

Alternatively

u-he Uhbik
cm139 >> 10/10 >> \$237
This pack contains a tasty reverb, but it's not as editable as Redline

Audio Damage Eos
cm142 >> 9/10 >> \$49
Another reverb that aims to reproduce classic digital units

Verdict

For: Awesome sound
Easy on CPU
Comprehensive control set
MIDI learn
User-friendly, intuitive interface...

Against: ...But fonts could be clearer

2009 is shaping up to be an expensive year for reverb-lovers, as this is another space-maker that you simply must try.

10/10

Universal Audio EMT 250 \$249

PC MAC



The world's first "Electronic Reverberator" is reborn for the UAD-2 platform - is it headed for the plug-in hall of fame?

> German plate reverb meisters EMT unveiled the world's first digital reverb device, the EMT 250 Electronic Reverberator, way back in 1976. This mighty chunk of hardware had 16KB of RAM, now-comical control levers to set parameters, three fans and a huge heatsink. As well as reverb, it offered digital delay, echo, chorus, phaser and 'Space' effects. The input was mono but the unit gave out four channels, for quadrophonic effects (quad audio was thought to be 'the next big thing' at the time).

Incredibly, the EMT 250 is still held in extremely high regard by many world-class producers. But with only 250 ever made and prices now reaching around \$10,000, you'll need to rack up a few gold records of your own before you can afford one...

Running on EMT

All is not lost, though, as Universal Audio have created an official plug-in emulation of the EMT 250 for their UAD-2 DSP platform. It even uses the original's algorithm, implemented with assistance from its designer, Dr Barry Blesser.

In true UA style, they've stuck very closely to the original design, and this extends to the interface, with its four levers controlling the parameters of the currently selected effect (you can only use one effect type at once). It might be novel, but it's a waste of screen space and hardly intuitive, either. An alternate compact GUI with 'normal' controls would be very welcome.

It's a warts-and-all reproduction, then, with the old school, character-building AD/DA stages modelled too, complete with soft background hiss and inputs that clip if pushed too hard - heed the metering lamps! Unlike the original, there's a Front/Rear switch to select a stereo pair from the quad output, and a Dry/Wet slider (the dry signal bypasses the virtual AD/DA stages).

Switches select the active effect, and the stereo Delay mode gives up to 375ms delay per side. The mono Echo, meanwhile, has adjustable



predelay, delay time and HF damping, while Space is basically a really long reverb. See our boxout for details on the Chorus and Phaser.

The main Reverb's parameters are decay (0.4s to 4.5s), bass and treble damping (four options each), and predelay (0/20/40/60ms). The sound is very lush, with some pleasant modulation going on and a dark tonality. There are no in-your-face early reflections as such - it's almost like a plate reverb in this sense.

When mixing, the EMT 250 provides a most pleasing 'cushion' of reverb, almost as though its enveloping, supporting and enhancing source sounds, rather than getting in their way. It's easy to mix with and sounds 'right' on a variety of material - we tried it on drums, percussion, vocals, synths and guitars. It won't necessarily make your other reverbs redundant, though, as it only really has one sound. But what a fabulous sound it is! It has a 'magic' to it that few others can touch, and when you factor in the EMT 250's five funky extra effects, it all adds up to one outstanding plug-in. Great work, UA! cm

Contact Source Distribution, 020 8962 5080
Web www.uaudio.com

Chorus of approval

The EMT 250's Chorus and Phaser modes are not to be ignored. The first of these has four preset chorus types and control over predelay time. We liked the subtle Mode II best, which is capable of a convincing double-tracked stereo effect, a little like the Cooper Time Cube plug-in (also for UAD-2). The chorus is also good for '3D-ising' drum hits and faking early reflections (with the predelay turned up). Its only drawback is that the strong pitch modulation can

sometimes bend sounds out of tune. The Phaser program is even simpler: the fourth lever controls predelay, while the first manipulates phase, and the Front/Rear switch changes the phasing 'flavour'. There's no LFO, though, so you'll have to use automation of the handle to get it moving! This is actually a pretty cool feature, and the phaser is also useful in the static position - eg, for softening up overly sharp percussion or shifting the timbre of instruments.

System requirements

PC 256MB RAM, Windows XP/Vista, UAD-2, VST/RTAS host

Mac 256MB RAM, OS X 10.4.x, UAD-2, VST/AU/RTAS host

Test system

PC Core i7 920, 3GB RAM, Vista Ultimate 64, UAD-2 Duo

Alternatively

TC Electronic DVR2
N/A > N/A > \$495
This TDM and PowerCore plug-in is said to be based on the EMT 250

Audio Damage Eos
cm142 > 9/10 > \$49

For vintage digital 'verb that won't break the bank, look no further

Verdict

Fab Fantastic classic reverb
The other effects are great too
Do-it-yourself manual phaser!
Simple parameter set

Avg A 'modern' GUI would be nice
Background hiss - just like the original!

This superb effort from UA only loses out on top marks due to its clunky GUI, but sonically, it goes half the way to ten!

9/10



PreSonus PC MAC FireStudio Tube £689

Things are hotting up over at PreSonus with the arrival of a valve-enhanced addition to the FireStudio line

The latest addition to PreSonus' FireStudio line certainly lives up to its name, being blessed with a couple of vacuum tubes - aka valves. The 1U device is a 16-in/6-out FireWire 400 interface with MIDI I/O. So without further ado, let's fire it up and feel the heat...

Installation is straightforward and the unit has the generic PreSonus look and feel: solid, sturdy and quite handsome. The two Class A Vacuum Tube 'SuperChannels' have Neutrik combo sockets that accept line, level or mic signals on jack or XLR connections. As well as Gain, there's a Drive control - turning this up subtly introduces the warmth and fatness of the tube colouration. Next is a Limiter knob with Gain Makeup control. The limiter is useful for avoiding digital clipping in certain situations, though normally you should avoid applying something so destructive prior to recording.

The SuperChannels sound brilliant, we have to say, giving a clean signal with the sort of depth, warmth and fullness that would give top-flight channels a run for their money. The Drive knob is useful for bringing in richness on instruments, and a touch on the vocal can work, too. The channels are well laid out with clear LED level and gain reduction meters.

The other eight mic inputs use proprietary PreSonus XMAX preamps, with +22dBu

headroom, which give a clean, detailed sound. After the mic, preamps are the most important part of a recording signal chain, and the XMAX ones are perfect for project studio use.

Socket to 'em

Unlike the old PreSonus FirePod, the sockets are sensibly placed on the rear panel, while the gain and paired phantom power switches are on the front. The remaining six line inputs also sit on the rear, as do three pairs of line outputs: one main pair and two others that can be used for patching in analogue hardware, discrete alternative mixes or surround sound.

In fact, the rear panel is so congested that the MIDI sockets have been farmed out to a 9-pin D-connector and breakout cable, which feels a bit wrong initially - 'gameport MIDI', anyone? - but once it's attached, you don't notice. The mains connection is, thankfully, via an orthodox IEC kettle lead, and there are two FireWire ports, so you can daisy-chain further units.

The FireStudio Tube lives up to expectations in use, and it really does cover a lot of bases very well. It might not be the cheapest interface on the block, but it definitely delivers the goods. **cm**

Contact Source Distribution, 020 8962 5080
Web www.presonus.com

Playing with FireControl

The addition of the FireControl mixing software brings great versatility to the FireStudio interface. It is particularly well laid out, with separate mix panels for each of the three pairs of line outputs and the headphones. So, for each pair of outputs, you can level and pan all the signals arriving at the unit's 16 inputs, providing a discrete mix for each of your analogue outputs that could be used for separate foldback mixes (in conjunction with headphone amps) -

perfect for recording a whole band.

You can mix your DAW outputs, too (the mixer supports up to 18 channels), but you only seem to be able to monitor the same computer DAW outputs on each mix. So, if you assign DAW OP 3&4 (DAW outputs 3 and 4) on the mixer for analogue outs 3 and 4, the same channel also switches to DAW OP 3&4 on all of the other output mixes, so you can't, for example, send a louder click to the drummer on a different DAW output.



ON THE DVD

MANUAL

Check out the full features and specs in the official manual

System requirements

PC 1.5GHz CPU, 1GB RAM, Windows XP/Vista, FireWire 400 port

Mac G4 Dual 1GHz/Intel CPU, 1GB RAM, OS X 10.4, FireWire 400 port

Test system

Mac G5 Dual 2.5GHz, OS X 10.5.6, 4GB RAM

Alternatively

MOTU 828 MK3

N/A > N/A > £695

A modern-day classic, and while it doesn't have tube preamps, it does have digital I/O

Lexicon Ionix FW810S

N/A > N/A > £219

Only eight inputs, but ten outputs, great preamps and dbx dynamics

Verdict

For Versatile configuration
Excellent-sounding 'SuperChannels'
Works as a standalone preamp/mixer
Intuitive and flexible mixer software
Loads of analogue inputs!

Against MIDI breakout cable
Software routing omissions
No digital I/O

The FireStudio Tube is bound to find fans thanks to its recording-friendly I/O configuration and all-round great sound

cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Blue Microphones

Mikey £60

Format: iPhone (all), iPod Touch 2G, iPod Nano 2G/3G/3G, iPod Classic, iPod 5G

Contact: info@tcelectronic.com

Web: www.bluemic.com

Blue's Mikey aims to turn Apple's iPhone and iPods (see list above) into high-quality stereo field recorders, using their built-in apps or any of the many available on the App Store. While it's not the only such add-on microphone available, it's certainly one of the more expensive - and the only one coming from a reputable pro microphone manufacturer.

The front side of Mikey is a stereo condenser mic, while the back is a mono loudspeaker for playback - a welcome feature for iPod users, though the lack of a volume control is disappointing. The unit connects solidly to Apple's 30-pin dock connector and can be angled 90 degrees in either direction, thanks to the hinged base, so you can lie the host device down and still keep the mic upright. A three-position switch on the back enables Mikey's sensitivity to be adjusted.

Mikey looks a bit feature-poor compared to some other iPhone mics, lacking such niceties as line input, direct monitoring and USB pass-through for charging. However, dynamic sensitivity and frequency response are genuinely impressive, and the three sensitivity levels mean that anything from ambient 'outdoor' sounds to



spur-of-the-moment vocal ideas to live gigs can be recorded with equal sonic efficiency.

There are considerably cheaper and more feature-packed iPhone/iPod mics on the market, for sure, but none of them do the job of capturing sound as well as Mikey, and for the computer musician, that has to be worth paying for.

9/10

Native Instruments

Audio 2 DJ £84

Format: PC/Mac

Contact: info@native-instruments.de

Web: www.native-instruments.de

The latest addition to Native Instruments' DJ interface lineup is just 3.5" long, with two stereo 1/4" jack outputs, each with a wheel to control their volume level, and simple output monitor LEDs. Aside from a USB port, that's it: no unnecessary bells and whistles here.

It's not as sturdy as the tank-like (and more expensive) Audio 8 DJ, but it's really light and sturdy enough that, providing at least a modicum of care is taken with it, we'd be perfectly happy to take it out and about. The hardware has WDM drivers, so Windows users can use it as a regular multimedia audio interface, and the package also includes a pair of stereo jack-to-phono cables, a USB lead, and a selection of NI software including Guitar Rig 3 Go and the Kore Selection soundpack for Kore Player. A demo of Traktor Pro is also included, and while it would be good if the package included some unexpiring DJing software, it still represents a solid deal for the mobile digital DJ.



9/10

Native Instruments

Discovery Series: North India £69

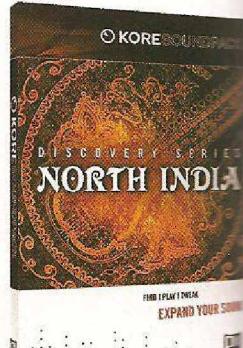
Format: KoreSound Pack

Contact: info@native-instruments.de

Web: www.native-instruments.de

This Kore soundpack takes inspiration from North Indian classical music and includes a variety of traditional instrument patches, including staples like the sitar and tabla, and some more obscure ones like the bansuri and shehnai. The patch programming is second to none, and Kore's macro knobs are used to deliver great flexibility for each patch - some instruments even offer a selection of authentic scales. The sound quality is brilliant, with crystal clear tones (although some of the tabla hits contain a lot of noise, strangely).

As well as the traditional instruments and drones, there are several pad sounds - they might not be authentically Indian, but they fit the vibe and will no doubt be appreciated by soundtrack composers. North India is an excellent ethnic library, and while it only consists of 30 patches, the high quality level makes it solid value for money.



9/10

PSP Audioware oldTimer \$99

Format PC/Mac, AU/VST/RTAS
Contact contact@PSPaudioware.com
Web www.pspaudioware.com

PSP bring us another stunning-sounding plug-in, this time in the form of a vintage-style compressor. It's not based on any specific piece of hardware, but rather is designed to capture the general sound and characteristics of certain types of old-style compressor. As a result, the controls are very basic indeed, making it much easier to make compress drums and other sounds without getting bogged down in endless tweaking.

So, about those controls, and first up is Ratio, which offers seven settings ranging from 1.2:1 to 10:1 and can take the effect from gentle levelling to full on pumping/squashing. At the higher settings, some sound-colouration takes place, but it is often quite pleasing to the ear. On a similar note, there's a simple three-way switch offering Valve (so nicely rounded) sound, Clear (more transparent) and Off (bypass) modes.

The self-explanatory Time gives one-knob

control over attack and release times, with the values slowing as the dial is cranked, going from fast percussive settings right up to slow levelling settings.

Next is Compression, which lowers the threshold level as it's increased, resulting in more compression being applied. Finally, there's a master Output knob that offers up to 30dB of makeup gain, which should be plenty!

All of this is great on paper, but how does it sound in use? Well, we tried oldTimer on a variety of sound sources, and while it's by no means a universal tool, it can generate excellent and even unique results on the right material. Examples of this include hats that need thickening, any single hits, drums or sound effects, or slapped right across your lead synth riff. You can drive the plug-in hard, to get a warm rounded sound, or use it subtly, to smooth over



rough edges.

With a healthy selection of presets to get you started and the kind of stunning sound that we've come to expect from PSP Audioware, we can say with absolute conviction that this is an essential plug-in.

10/10

Universal Audio Neve 31102 \$249

Format UAD/UAD-2, VST/AU/RTAS
Contact Source Distribution, 020 8962 5080
Web www.uaudio.com

The latest EQ to hit the UAD platform is the Neve-endorsed model of the 31102 EQ module originally found in the Neve 8068 console. It's been used in the production of a lot of American rock bands - such as Guns N' Roses, Metallica and the Red Hot Chili Peppers - for its bite and edginess, and although it's not as well known as its stablemates the 1073 and 1081, it stands beside them sonically.

There are just three bands of active EQ plus low- and high-pass filters, and the plug-in window is oriented horizontally, as if racked up - if you're used to the vertical console style, it feels wrong initially, but you soon get used to it. A vertical option would've been neat, though!

The top and bottom bands are shelving filters with three and four selectable frequency points respectively. It's great to hear the smooth sound of the top end as you increase the boost at 10 or 12kHz - it's airy and glistening, with no hint of the harsh grittiness that's found on a lot of digital EQs. The warmth and weight of the bottom end is full, fat and creamy.



The mid-band bell curve is where the character of the unit lies. A quick boost on a drum kit at the 3.2 or 4.8kHz centre frequencies is enough to tell you why rock bands like it. It really bites in and cuts through without leaving the sound thin. A narrower Q setting on the mid-band allows for tighter, more precise control. And taking out mid-range woodiness at 700 or 350Hz opens the sound up majestically.

Interestingly, even with the EQ processing switched out, the sound is coloured slightly, just like the real thing - engineers have always

known that just running a signal through Neve gear makes it sound richer before you've even touched the controls. Finally, you also get an SE version that's less hungry on the DSP, at the expense of accuracy/authenticity.

Whether you really need this plug-in will depend on what you've already got in your EQ locker, and while it's not a must-have, it certainly lives up to UA's consistently high standards and will be of particular interest to those who covet the Neve sound.

8/10

Soundware round-up

Dark Side Of The Tune DOWNLOAD

Bent-O-Box \$9

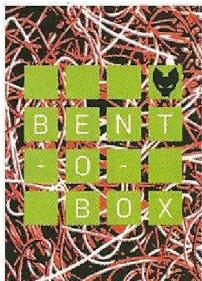
Web: www.darksideofthetune.com

Format: WAV, MPC

Bent-O-Box is a very unusual collection of incidental glitch samples in MPC-ready WAV format – it's the second such MPC-oriented pack we've reviewed from Dark Side Of The Tune, in fact. The sounds on this one have a tone similar to that of sound effects from early Amiga games – on the whole, short and lo-fi. You'll find pops, crackles, buzzes and an assortment of odd clicks.

You might find that they're best used in conjunction with a full drum kit, as despite the MPC format, the library doesn't seem to cover all of the sound types you might need to create a full beat. However, that's not to say that this lot don't have percussive potential.

7/10



Loopmasters DOWNLOAD £25

Celt Islam Sufi Dub Sound System

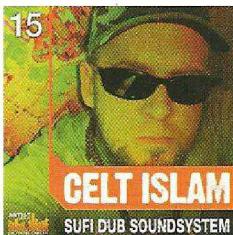
Contact: info@loopmasters.com

Web: www.loopmasters.com

Format: WAV, ACID WAV, REX2, Reason Refill, Live Pack, Apple Loops

Celt Islam introduces the Sufi dub sound to sample library market. This collection of over 360 loops fuses authentic dub reggae with modern world music, with a distinct UK underground dance twist. The result is an exciting hybrid, ripe with creative possibility. Expect live ethnic flavours alongside the freshest of dirty sub bass synths and glitched up Jamaican vocal snatches. Despite borrowing so much from the past, it comes together as something very contemporary and inspiring. Producers of breaks, dubstep, drum 'n' bass, etc, should definitely check it out.

9/10



Sample Magic

Sunrise Sessions £59

Contact: Time+Space, 01837 55200

Web: www.timespace.com

Format: WAV, REX2, Stylus RMX, Apple Loops, Reason, HALion, Kontakt, EXS24

Sample Magic return with another elite sample collection. Unlike most of their titles, Sunrise Sessions isn't centred on high-energy dance grooves, and instead you're treated to 980 sounds, comprising smooth, mellow one-shots and loops at tempo groups 80, 90 and 100bpm.

Continuing where predecessor Sunset Sessions left off, you'll find a diverse selection of live instrument performances, including brass, piano and bass. Every sound is exceptionally well performed and well recorded, and the drum beats have been stripped down into basic elements to allow you full control. A premium quality pack!

10/10



Nine Volt Audio

Big Bad Bass Guitar £70

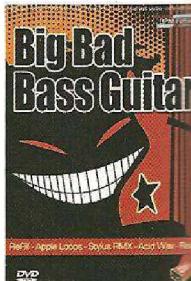
Contact: Time+Space, 01837 55200

Web: www.timespace.com

Format: ReFill, Apple Loops, Stylus RMX, Acid WAV, REX2

Continuing the super-pliable BPM Flex series, Big Bad Bass Guitar is a collection comprising 598 unique loops, split into 30 song suites, eight toolbox suites (containing chromatic loops), muted strums and a slides section. This gives an especially flexible solution and you won't have any trouble at all producing a convincing bass part. All of the loops are high-quality, 24-bit recordings of live players, with a very solid and rocking tone. The tempo ranges from 80 to 160BPM (although tempo isn't much of an issue if you're using one of the stretch-happy formats, such as REX or Apple Loops).

10/10



Loopmasters DOWNLOAD

Fistful Of Drummers Pack 1 £15

Contact: info@loopmasters.com

Web: www.loopmasters.com

Format: AIFF

The first download pack from the Fistful Of Drummers collection gives you four full drum tracks at 82, 87, 89 and 91Bpm, all with a classic 70s-style groove. Each drum track is then split into separate files (where available) for kick, hat, snare, shaker, tambourine, spring reverb, and several overhead channels. This makes for a very practical fix for producers on the search for that live drum sound. The drumming is pretty good, although it won't blow you away. The recording standard isn't the absolute best either, but it has some character and we're sure that, with a little elbow grease, there's everything you need here to shine up a decent drum mix.

7/10



Big Fish Audio

Vintage R&B £72

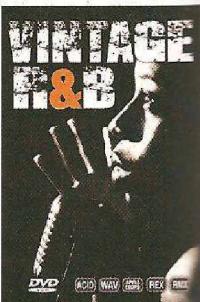
Contact: Time+Space, 01837 55200

Web: www.timespace.com

Format: ACID, WAV, Apple Loops, REX, Stylus RMX

Vintage R&B takes you back to the golden era of rhythm & blues. You'll find 25 well-labelled construction kits with a good selection of loops, highlights being the classic sounds of live brass and tambourines, wah wah guitar and a whole load of funky bass. While these kits are pretty authentic, and the files are provided in 24-bit format, the recording quality isn't without its flaws. For instance, you might have to work slightly harder to compensate for less than ideal microphone placement. Another criticism is the length of each kit – they almost sound like intros rather than full songs.

7/10



Producer Loops

Electro Tip Trixxx £14.95

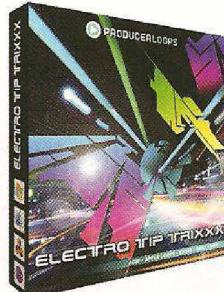
Contact Producer Loops, 0845 094 3077

Web www.producerloops.com

Format Acidized WAV, REX2, Apple Loops, EXS, MIDI

This 460MB library covers the harder side of electro house, and the main attraction is a ton of dirty, grinding synth loops. The flavour here is rough and ready, in a good way – even producers of dubstep and tougher breaks tracks could find much of the material useful.

Other highlights include the drum loops (though purists might be frustrated by spot effects and pitched sounds included in the loops), synth and percussion one-shots, and a selection of noisy synth FX. Overall, Electro Tip Trixxx is a good selection at a great price that will appeal to a broad spectrum of lovers of hard-edged dance music.

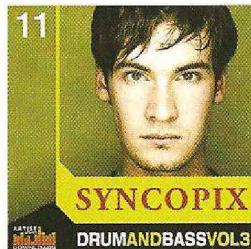
9/10

Loopmasters DOWNLOAD

Syncopix - Drum and Bass vol3 £25Contact info@loopmasters.comWeb www.loopmasters.com

Format Wav, Acid, REX2, Reason Refill, Live Pack, Apple Loops, HALion, Kontakt, EXS, SFZ, Live Pack, NN-XT

DnB producer Syncopix provides a selection of loops, single hits and sampler patches. Generally, the standard isn't quite up to previous packs from the Loopmasters/Hospital Records collaboration: many of the musical loops are weak, and the reverb and delay on some of the bass sounds is undesirable in this context. However, there are some phat single-hit sounds on offer, and Syncopix's effort is still worthy of investigation by sample-hungry DnB producers.

6/10

Prime Loops

Lee Coombs Tech Funk V2 £15

Contact via website

Web www.primeloops.com

Format Acidized WAV, Live Pack, Apple Loops, Akai MPC

We enjoyed Mr Coombs' first slice of Tech Funk, so it's good to see he's back to provide us with another helping of beats and bass lines. The highlights here are the ten 128bpm construction kits, which include individual tracks for each of the drum sounds.

Elsewhere, it's business as usual, with a selection of synthesiser FX, beats, and synth and bass loops. With up to 400MB of content per format, it's not an enormous pack, but the price is reasonable and the content is up to scratch, so kudos to Coombs once again for delivering the goods.

8/10

Loopmasters DOWNLOAD

Moguai Punx Electro, Tech & Progressive House £25Contact info@loopmasters.comWeb www.loopmasters.com

Format Wav, Acid, REX2, Reason Refill, Live Pack, Apple Loops, HALion, Kontakt, EXS, SFZ, Stylus RMX, Live Pack, NN-XT



Moguai has crafted a sound set with a broad range of influences, which is intriguing, but unfortunately, there's a general lack of sonic quality. All of the right sounds are here, but they just feel lifeless and static compared to other titles. However, there are over 980 unique samples and they hold potential if you're into extensive tweaking and processing. You'll find the usual categories of effects, drums, chords and instruments, and there are single hits as well as loops.

6/10

Puremagnetik DOWNLOAD

Microtron: Tape 2 \$12Contact info@puremagnetik.comWeb www.puremagnetik.com

Format Live Pack, Kontakt, Logic



The Mellotron is an all-time classic prog rock instrument, offering an early form of sampling, using strips of tape to replay prerecorded sounds. This release from Puremagnetik recreates the Mk II Flute (popularised by the Beatles), Octave Recorder and Cello patches, with some controls for tweaking the sound to your specifications. The packs also include 50 loops, though we imagine that most users will just go for the multisamples. The patches are of good sound quality and play well, making this a decent buy, especially for the extremely reasonable price. Those looking for budget Mellotron sounds won't be disappointed.

8/10

Sample Logic

WaterHarp £36

Contact Time+Space, 01837 55200

Web www.timespace.com

Format Wave, Kontakt 2 / 3



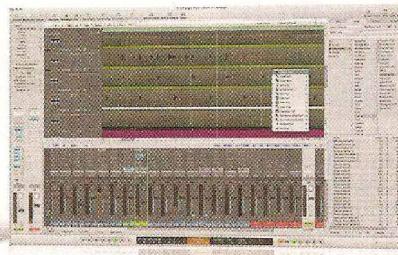
This library of Kontakt patches is based around the spooky sounds of the waterphone – it's an extremely unusual instrument that's graced many a film soundtrack (including The Matrix) with its creepy tones. The patches cover soundscapes, effects and rhythmic tones, and the quality is absolutely superb.

Considering the low price, the quality and quantity (1.8GB) of the supplied sounds is quite astounding. The only problem might be that you need a registered version of Kontakt 2 or later to use the product as intended, although it is possible to access the raw WAV samples directly. If you're a soundtrack composer looking for weird noises or someone who simply wants to try something a little different, WaterHarp is a great buy.

10/10

cm/recommends

The best new gear from the last three issues...



Propellerhead PC MAC **Record** £229

Rating 9/10

Reviewed cm143

Contact Sound Technology, 01462 480 000

Web www.propellerheads.se

What is it? A self-contained recording program that can also 'merge' with Reason (if you also have it installed) to form one super-app. The big selling points of Record are its fuss-free interface, rock-solid performance, excellent on-the-fly stretching and a terrific-sounding mixer that emulates an SSL console. There's a built-in 'songwriter's' ROMpler, as well as awesome virtual guitar and bass amps from Line 6.

Verdict "At its best when used alongside Reason, but this is a very solid start for Record"

Apple MAC **Logic Pro 9** £399

Rating 10/10

Reviewed cm143

Contact Apple UK, 0800 0480 408

Web www.apple.com

What is it? An update to Apple's ever-popular Mac-only DAW, this one took us by surprise, as it was entirely unannounced prior to launch day. Logic Pro 9 remains part of the Logic Studio bundle, and highlights include enhanced audio editing functions, all-new virtual guitar amps and effects, and the beautifully implemented Flex Time system, which enables you to warp audio as you see fit.

Verdict "Logic Studio remains fantastic and feature-stuffed, and Logic Pro 9 is perhaps the best all-round DAW"

Akai PC MAC **APC40** £399

Rating 10/10

Reviewed cm141

Contact Akai Pro, 01252 341 400

Web www.akaipro.com

What is it? The best controller we've ever used, the APC40 is a dedicated device for controlling Ableton Live. You can launch clips, control levels, tweak panning and send amounts, manipulate plug-ins and lots more. The backlit buttons and LED-encrusted knobs make it a doddle to keep informed about what you're actually doing, and the whole thing is so damned intuitive that the inclusion of a manual is really just a formality. Astounding!

Verdict "Without peer in the Live controller market, this is essential for Ableton Live users"

What we've been using this month



Ronan Macdonald
Editor

With Logic Pro 9's Flex Time system, Apple have finally got with the program and introduced elastic audio to the DAW that I call 'home'. Where's the 64-bit and OpenCL support, though?



Lee du-Caine
Deputy Editor

Some say it's unnatural, but I'm addicted to playing the *Blockbusters* theme on my C-Thru Music AXiS-49 - the logical note layout is certainly helping to bust my writer's block.



Tim Cant
Multimedia Editor

I've been risking heartbreak by messing around with a real player - NI's new Kontakt Player, specifically. It's not particularly emotionally available, but it certainly has a large soundbank.



Craig Hitchings
Production Assistant

I'm absolutely pumped to be using Vengeance-Sound's excellent Multiband Sidechain - I've even been sidechaining my guitar creatively with drum tracks.

>Your questions answered

Q&A

Having trouble deciding what to spend your hard-earned cash on? Is there a problem with your setup that you simply can't fathom? Or do you want to know how to pull off a certain sound? Send your questions to cmhelp@futurenet.co.uk

Amped up

Question I'm going to college next year and will unfortunately be doing lots of mixing on headphones. I've all but decided on AKG K 242s for the flattest frequency response possible. Are headphone amps used for sheer power, or do they boost accuracy as well? Any bang-for-your-buck suggestions?

Walker Parrish

Answer Using a headphone amp can be advantageous, and will likely give better sound and a stronger level, but it'll only really benefit you if used in conjunction with a decent audio interface. You should therefore use both - or get a quality interface with a headphone output.

You don't mention what your budget might be, but among our recommendations would be a MOTU interface. These have excellent headphone amps that can be driven relatively loud without distortion and are great all-round audio interfaces to boot. You can pick up the excellent MOTU 828 MkII for £400. You may also want to look at the new Focusrite Saffire Pro 24 DSP, with its Virtual Reference Monitoring technology, which is claimed to give a monitor-esque experience when using headphones.

Get connected

Question I recently purchased a copy of your cm Special on Ableton Live and considered getting the Kenton Killamix Mini,



The Samson C-Control is a great solution for routing multiple inputs to multiple outputs

as featured in the mag. Is there a way I can use it to control the volume of inputs and outputs of a soundcard, similar to how you would use a monitor matrix like the Mackie Big Knob? The idea is to have the master outputs from Ableton Live, my CDJ1000 MK3, PC soundcard and PlayStation connected as inputs to some sort of controller, which could then be outputted to my Genelec monitors, TV inputs, headphones and Yamaha NS10s.

Lewis Brodie

Answer While it's possible to control the mixer sections of some audio interfaces via MIDI - for instance, the RME FireFace 400, which has an RRP of £704 - a more cost effective and practical solution would be to invest in an affordable control room matrix, such as the Samson C-Control (RRP £136.85),

though you'll easily be able to pick one up for less than £100. This handy little audio routing box has four stereo inputs and six stereo outs, plus a headphone out. That way, your MIDI controller could be kept exclusively for controlling Live, and you'd be able to adjust the levels of each input directly via the hardware's interface, rather than having to do it via MIDI.

Splitting headache

Question I use Ableton Live's Slice to New MIDI Track function, which automatically chops a sample into a set of quantised parts and places them in a Drum Rack. After Live splits the clip for me, however, some of the clips will contain an odd transient or 'click'.



MOTU's 828 MkII is a fantastic multiple output interface, with a dedicated headphone socket for monitoring



If your FireWire audio interface isn't working properly, make sure its driver is set up right

Any idea as to how and why this happens? And what would you suggest to be the best way of cutting audio clips to prevent this?

John Lightner

Answer Automatic beat-slicing features are generally pretty efficient, but they're not always perfect, and Ableton's is no exception. While Live offers a variety of different modes for beat detection, they all have their advantages and disadvantages. We'd recommend using the default mode and manually adjusting any slices that you're unhappy with. To do this, select the slice in the Instrument Rack and manually adjust the start and end points in the Sampler Instrument. Note that you may find turning down the **Attack** time gives you a crisper sound.

Mixed up

Question I'm starting to use Ableton Live for DJing, but despite not actually needing to do the beat-matching in real time, I'd like to be able to cue tracks in a separate mix on headphones. Is this possible, and if so, how?

Stephen Prevost

Answer It's certainly possible to set up a dedicated headphone mix for cueing tracks in Live, though you will need an audio interface that offers multiple hardware outputs, so that you can use a stereo output as well as your headphone mix. Check out *Setting up a cue mix in Live*, right, for a step-by-step guide.

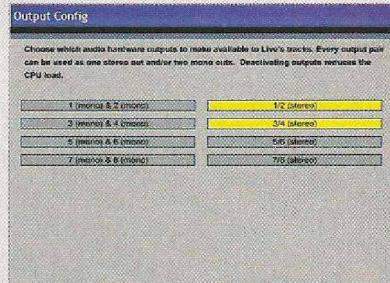
Glitched out

Question I have a Behringer FCA202 FireWire interface and it glitches when

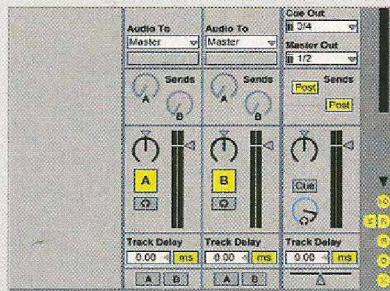
"It could be that your laptop's FireWire chipset isn't up to the job - it's generally accepted that Texas Instruments (TI) chipsets are the best for audio"

> Step by step

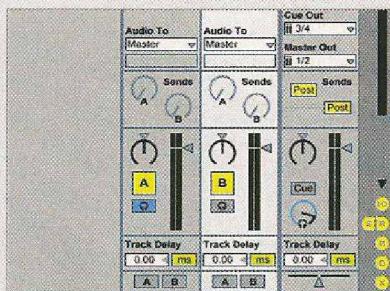
Setting up a cue mix in Live



1 > If you want to preview tracks when DJing, you need an audio interface with multiple outputs. Go to **Options»Preferences**, hit the **Audio** tab, select **Hardware Output** and activate more than one pair of stereo outs. Once done, a cue button with a pair of headphones on it appears on each mixer track.



2 > If you open the In/Out sections with the **I-O** symbol, you'll see separate Master and Cue Out options. Set the **Master Out** to your audio interface's main output and the **Cue Out** to a secondary output, or a dedicated headphone socket, if one is available. Note that all tracks will still come out of the master channel regardless.



3 > To select a track to monitor through the Cue Out, simply click the Cue button on that channel. Note that you can monitor several tracks at once by holding **Ctrl** (PC) or **Cmd** (Mac) when clicking the Cue button. You can also adjust the headphone level with the bottom rotary (shown in blue above) on the master channel.

> Step by step

Bloody Beetroots-style synth



1 ➤ Making a synth sound in the style of Warp by The Bloody Beetroots featuring Steve Aoki is relatively easy. Install Genesis CM (in the CM Studio folder on the DVD) and load preset 3, **Dominator**. Close enough for you? Of course, you'll probably want to customise the sound a little bit to fit the rest of your track.



2 ➤ We suggest that you start by turning off the synth's **Delay** and **Reverb** effects (by dropping their levels to zero), which has the added benefit of reducing CPU usage. Note that ADSR 3 is set to modulate **Pitch 1+2** - we can use this to create pitchbending effects.



3 ➤ Turn up ADSR 3's **Amount**, to increase its effect. To change the speed of the pitchbend effect, adjust ADSR 3's **Decay**. Finally, the **Portamento** knob in the oscillator section controls how quickly the pitch glides from one note to the next.

This Dell Dimension, with its 3.2GHz CPU and 3GB RAM, is more than capable of handling complex audio projects

Answer The Warp synth sound is almost certainly that of the Roland Alpha Juno - or at the very least something that does a great impression of it. There are a couple of synths that can do this easily, one being Lennar Digital Sylenth1, the other being Genesis CM, which you can find exclusively in the **CM Studio** folder on the DVD. See the *Bloody Beetroots-style synth* walkthrough, left, to get raving.

Black box recorder

Question I write to ask about a USB interface aimed primarily at guitarists that I remember reading about a couple of years ago. I thought it was made by M-Audio and called something like Black Box, and it featured many presets and emulations suitable for guitar sounds. But there's no sign of such a product in M-Audio's 2008 catalogue. Was I dreaming?

Padraig Stevens

Answer You're not dreaming - M-Audio had a product called Black Box. We asked the company's Northern Europe Field Marketing Specialist David Atkinson what became of it:

"Black Box (and Guitar Box, which included the same interface bundled with Pro Tools M-Powered) was discontinued in early 2008. Obvious replacements would be the Fast Track USB interface, or the Fast Track Pro (both feature dedicated guitar inputs), which can be used in conjunction with Pro Tools M-Powered and the free SansAmp amp emulation plug-in, or Eleven, a dedicated classic/vintage guitar amp simulation processor for Pro Tools."

Power tools

Question I have a Dell Dimension PC with Intel Pentium Quad Core 3.2GHz processor and 3GB RAM running Windows XP Pro SP3. I use Ableton Suite 8 for recording.

Live 8 lists SigmaTel Audio DX or SigmaTel Audio Wave as audio devices under the MME/DirectX driver type, or the Line 6 Studio UX1 or M-Audio Fast Track Pro for ASIO.

I would be grateful if you could tell me if this machine has sufficient power for making computer music at home, or what upgrades would be beneficial. Do I need a new system?

John Fleming

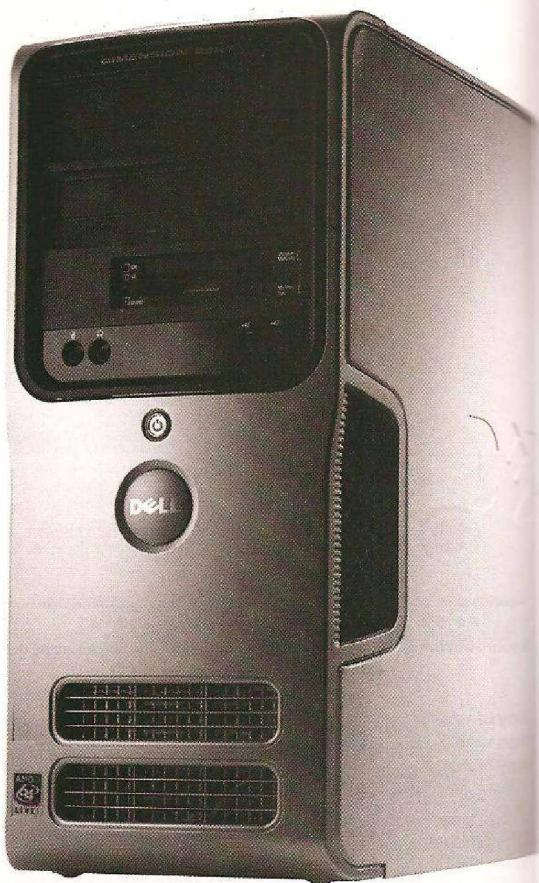
Answer You'll be happy to hear that your computer is certainly powerful enough to run fairly complex projects with ease. A quad processor system offers the sort of CPU grunt that could only be dreamed of a few years ago, and with 3GB of RAM, you'll be able to run a large number of memory-chewing plug-ins.

To get the most out of your system, however, you need to make sure that it's set up correctly. From your question, it appears that you're unsure as to what the different audio device options mean. Generally, you'll want to use ASIO-supported devices, as these are designed to work with large amounts of audio data. As you appear to own both a Line 6 Studio UX1 and an M-Audio Fast Track Pro, we suggest that you give their accompanying documentation a read and experiment with each to see which one works best for you in a recording situation.

You won't need to upgrade your system any time soon, unless you find that even with the correct driver settings you regularly max out your CPU usage. Note that increasing the **Buffer Size** in Live's **Preferences** panel may help with CPU issues, at the expense of responsiveness.

Level playing field

Question I'm an experienced guitarist, but I'm fairly new to computer recording. I'm confused about optimum recording levels and have seen conflicting advice. In your cm



"A quad processor system offers the sort of CPU grunt that could only be dreamed of a few years ago"

Guitar Special (the *Levelling Up* tutorial), you say, "Run the guitar signal up until it clips, then back it off and keep a 'healthy' level, but don't stray into 0dB". Sounds reasonable, especially as I've been more accustomed to recording with tape, where there was always a balancing act between getting a hot enough signal on the tape to avoid noise, without going so high as to cause distortion.

However, on the MusicRadar.com forum, someone said your advice is wrong, and that you should aim to record with an average (ie, RMS) level of around -18dB coming into the computer. As far as I can tell, the argument seems to be that since the audio interface preamp stage is analogue, you should feed it a line level signal, which is the equivalent of a -18dB average signal level, otherwise you're pushing the circuitry too hard and compromising the sound. Then again, I've heard the arguments about how you should

keep the levels high to "use all the bits" ... So what is the correct digital recording method? Has the digital revolution freed me from recording level shackles or do I still need to get the levels as hot as possible?

Robert Besser

Answer There is a lot of conflicting information on this subject, so to nail the issue once and for all, we called on the expertise of Focusrite, who certainly know a thing or two about recording gear - they made their name back in the 80s with million-dollar mixing consoles and boutique analogue hardware, and these days their Saffire audio interfaces are among the finest in their class. Rob Jenkins, R&D Director at Focusrite, explains:

"Getting the highest level was an issue back in the day when converters were 16- and 18-bit - every 6dB below OdBFS [NB: OdBFS refers to the maximum possible signal level] resulted in

one bit less after conversion, so it's easy to see that with low-resolution converters, one runs out of bits very quickly."

"These days, however, the need to risk clipping is not really necessary - getting the signal to peak between -18dBFS and -6dBFS will give one the right balance between the risk of clipping and getting a good quality recording."

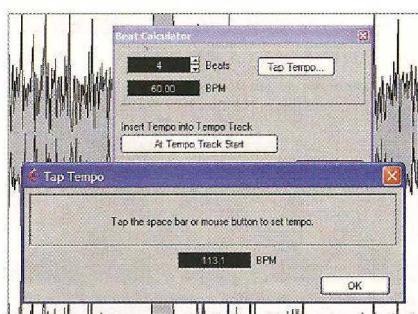
"Some converters clip 'better' than others; for example, some have in-built analogue limiting that allows the input to be 'clipped' by many decibels before the effects become audible. Others simply create an obnoxious noise at any level above OdBFS, and that will completely destroy the audio quality of the recording."

So will recording a signal that's too hot - but not clipping - still impair quality?

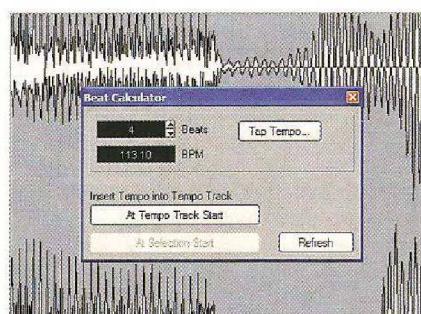
"Any well designed piece of hardware should be designed such that the input circuitry has a greater headroom than the ADC converter, so that the dynamic range and noise of the

Question

How do I change the tempo of an acappella vocal in Cubase 5?
Colin Stuart



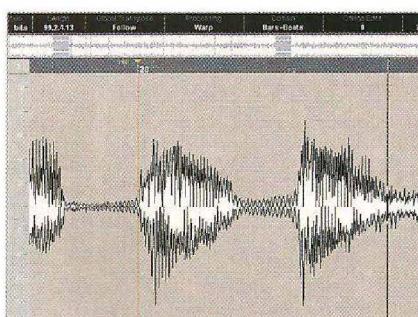
1 > Import the acappella into a Cubase project, select Project>Beat Calculator, then click the Tap Tempo button and play the acappella back. Press the Spacebar in time with the acappella and Cubase will work out the tempo for you. Once the average tempo in the Tap Tempo window seems to have settled, click the OK button to close it.



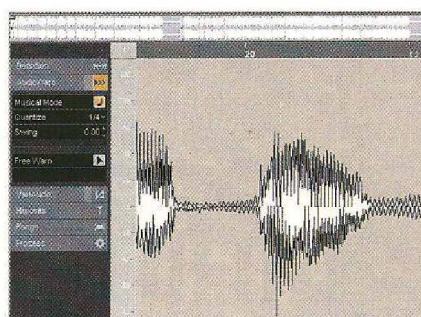
2 > To set the project to this tempo, click the At Tempo Track Start button in the Beat Calculator window. Now move the first identifiable beat of the acappella so that it sits at the start of the next bar. Activate Cubase's metronome: the acappella should be in time with it. If there are any slight errors, don't worry - we can correct them later on.



3 > To adjust timing errors, you can use Cubase's built-in warping features. Double-click the audio region and activate Free Warp mode by selecting the arrow button. If you feel that part of the acappella is slightly out of time, click on the waveform where the beat falls to create a new warp marker.



4 > Drag the warp marker to move the audio to the appropriate position. If you're unsure of how the vocal should sit and you have access to the full mix of the track from which it came, you can import this into the project (on a separate track) to check that the timing is as it's supposed to be.



5 > Once you're happy with the timing of the vocal, enter the original BPM value into the tempo field at the top of the sample editor. When you click the Musical Mode button, the acappella will automatically stretch to fit the project tempo - change it to 128bpm, or whatever you want to use for your song.



6 > You'll likely get better results if you change the stretching Algorithm field (found to the right of the Signature fields in the Sample Editor) to Vocals. To change the start point of the acappella, move the s handle from the start of the file to the first beat - this will handily snap to the nearest beat with Quantise active.



With a quality interface like Focusrite's Saffire Pro 40, you shouldn't have to worry too much about issues like background noise

converter stage is not compromised. So the simple answer is that, no, recording hot signals that do not clip will not impair the recorded sound in a well designed circuit."

And how about noise? Is this an issue if you record with levels of -18dBFS RMS?

"Only if the interface is noisy. A good interface will have a dynamic range of between 100dB and 120dB. That means a -18dB signal will have a signal-to-noise ratio of 80 to 100dB. That's better than most analogue desks, so unless masses of gain is added at the mix stage,

the noise will never present itself as a problem."

Does it pay, then, to invest in a higher quality interface that's up to the job?

"Yes it does. We spend a lot of time matching our input stages to our converters; for example, the new Octopre interface has an input stage that has been designed specifically to have headroom capable of handling drum dynamics without overloading."

So far, we've been discussing line level signals, but what about mic recordings?

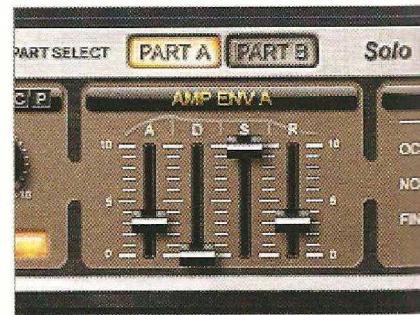
"Microphone signals tend to be very dynamic

so if the signal varies, then the use of a compressor can help to prevent clipping whilst being able to get the maximum signal level."

Finally, recorded guitar signals are often subjected to unusual amounts of gain via amp simulation plug-ins, which can expose low-level noise, and so Rob also suggests recording through a compressor here. Another approach would be to record via a tube overdrive pedal such as an Ibanez Tube Screamer, to pump up the signal on the way in. **cm**

Question

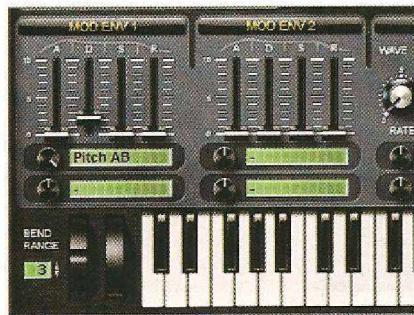
How do I make a Gigi Barocco-style bassline?
HIP



1 > The kind of dirty synth noises used by Gigi Barocco can be created in most virtual analogue synths, and in this case we're going to use Sylenth1, because it's got great unison detune and filters. Start by loading up the **BankInit** patch, which gives us a blank canvas to work on.

2 > This sound relies on a large number of slightly detuned unison voices, so set the first oscillator's **Voices** to **8** and **Detune** knob to around **1.2**. This gives a chunky tone that packs quite a punch.

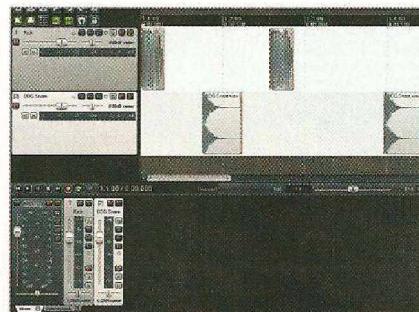
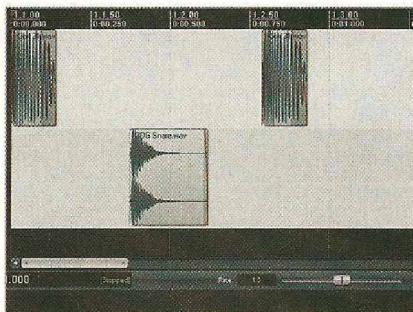
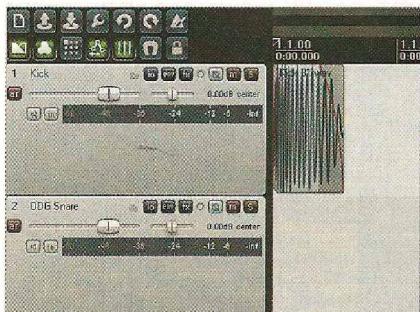
3 > Turn Amp Env A's **Attack** time up to **3** for a typically lazy fidget feel. This also moves the synth safely clear of the kick drum when both play at the same time, and helps the mix to sound bigger overall. Set the **Release** to **3**, while you're at it.



4 > A big part of the fidget house sound comes from the use of pitchbend, and to save us having to program in a load of MIDI pitchbend curves, we can build some pitch modulation directly into the synth patch. Set the first destination of Mod Env 1 to **Pitch AB**, the modulation **Level** to **1** and the **Decay** to **4.5**.

5 > Experiment with the modulation **Level** to get subtler or more dramatic effects – turning it up creates a nasty, ear-splitting tone, which might be exactly what you're after! Note that a large modulation amount with a lower Decay time will result in a punchier bass sound.

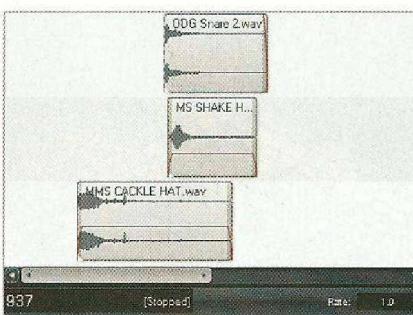
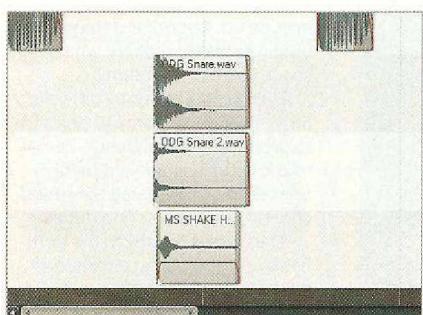
6 > To get a chunkier sound, change the first oscillator's **Wave** shape from sawtooth to square. For more squelchy tones, set Filter A's **Filter Type** to low-pass, turn the **Drive** and **Resonance** up to **2.5**, and automate the **Cutoff** parameter to taste.

Question**How do I make Burial-style beats?****Paul Schoenherr**

1 > It's said that Burial doesn't use a traditional sequencer, preferring to create his tracks in Sony's Sound Forge audio editor. This means that his tracks don't rigidly fit to a regular grid. We can do the same in a DAW (we're using Reaper, on the DVD) by turning off **Snap**.

2 > Drag in some kick and snare samples from the **Tutorial Files/Q&A** folder on the **cm** DVD. At this stage, we just want to get a groove going with the kick and snare. Place the first kick at the start of the first bar, but don't worry about where the other beats sit in relation to the tempo track - just go for what sounds good.

3 > Once you've got a rhythm you like, you'll want to loop it. As you're not working to a tempo track, set the left locator at the start of the bar in which you placed the first kick, and experiment with right locator placement until the loop sounds right.

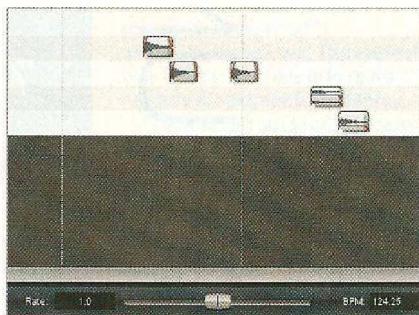
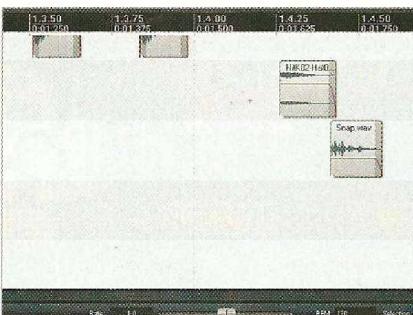
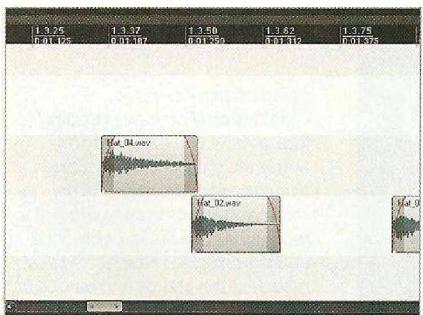


4 > You'll likely find that you want to beef up the snare with some supplementary sounds. Sidestick and rimshot samples are particularly useful for Burial-style beats, so try layering some up with your regular snare sound. A shaker or hi-hat over the snare can also add top-end, if required.

5 > With the kick and the snare sorted, let's fill in the gaps with some other percussion sounds, such as open hi-hats. You'll find appropriate samples in the **Q&A** folder, but bear in mind that Burial often uses non-standard samples for this kind of task, such as metallic Foley-style sounds taken from films and videogames.

POWER TIP**Make some noise**

One trick Burial uses to make his tracks sound fuller is incorporating noise-based samples, such as vinyl crackles and rain. This helps fill up both the frequency spectrum and the spaces between the beats. However, if you want the kick and snare to punch through the noise, you can duck it out when those sounds play, either via sidechain compression or by automating the noise track's volume level.



6 > To create realistic shuffle rhythms, it helps to use multiple hi-hat samples - if you repeat the same samples too many times within a beat, they can sound very artificial. So use the two closed hi-hat samples in the **Q&A** folder together, as we have here.

7 > As well as hi-hats, sometimes finger snaps and other percussive sounds make for good shuffles. Create another shuffled groove with the closed hi-hat and finger snap samples in the **Q&A** folder. If you're having trouble, open the example Reaper project, which you can find in the same folder.

8 > Once done, you'll probably want to set your DAW's tempo to that of the loop. If your DAW doesn't feature any kind of 'set tempo by locators' function, you can do this by dividing 240 by the length of the beat in seconds. For example, if your loop lasts two seconds, the tempo will be 120bpm.

cm Focus

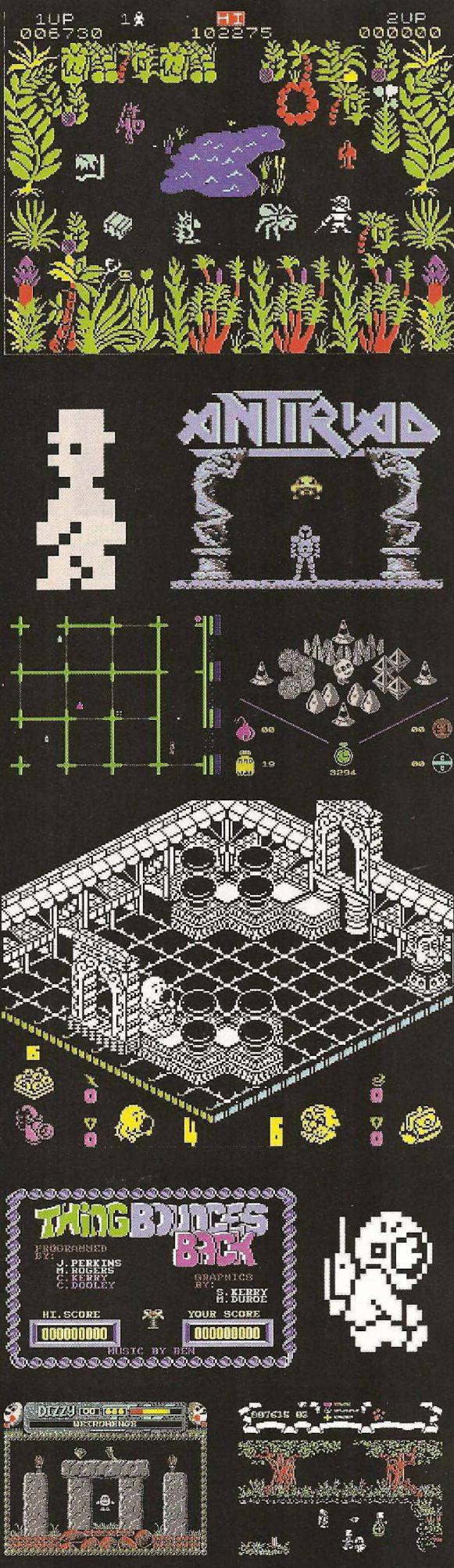
CHIPTUNES

The lo-fi bleeps of vintage videogames have inspired a whole musical scene, but they're also used in modern pop. Here's how...



ON THE DVD
TUTORIAL FILES

Our Cubase 5 chiptune project is in the Tutorial Files folder; Unknown 64 CM is in the CM Studio



> For those who grew up in the 80s and 90s, nothing reeks of nostalgia like the lo-fi sounds of early videogames. 8-bit machines like the Sinclair ZX Spectrum, Commodore 64 and Nintendo NES might have had very limited sound capabilities, but the computer musicians of the day managed to squeeze some classic tunes out of them.

The spirit of these old-skool soundtracks lives on in the thriving retro-centric chiptune scene of today. But what defines chiptune? The term itself originated in the early 90s when the Amiga demoscene's musicians would create 80s-style video game music using trackers like SoundTracker and ProTracker. Unlike the systems they emulated, the Amiga used samples instead of oscillators-on-a-chip (like the C64, Spectrum, etc), so to imitate this, compact 'chiptunes' used crude samples, sometimes cycling a single waveform to create sounds, and were thus small enough to include in size-critical demos and other pieces of software where space was at a premium.

Eventually, the subtly different term 'chip music' came to be used to describe 'the real thing' - ie, music actually made on, say, a ZX Spectrum or C64, using the sound chip for synthesis/sound duties.

These days, however, the term has become far less specific, and anything that exhibits a whiff of vintage videogame music is labelled 'chiptune', and the influence of early videogame soundtracks and the chiptune scene can be clearly heard in

"The influence of videogames and the chiptune scene can be heard in pop music"

mainstream pop music.

In this **cm Focus**, we're going to look at how you can get an authentic chiptune-style sound using the tools available in the modern DAW. By employing techniques like fast arpeggiation and sample rate reduction, we can resurrect the bleeps and bloopers of the 80s. By limiting ourselves to basic synth sounds and just a few tracks, we encourage ourselves to compose in a different way, which can lead to musical, sound design and mixing ideas that we might not otherwise have stumbled upon. Now, without further ado, let's get this bleeping show on the road! **cm**

> Step by step Creating arcade-style arps



1 > One crafty technique used by old-skool video game composers was to create the illusion of chords by rapidly cycling a single voice through different notes at very high speed. This psychedelic effect instantly brings mid-80s videogames to mind. Load Unknown 64 CM (on the DVD) onto a new track - a good starting point for a lead sound is the LeadScreamer patch.

2 > To turn up the speed of the Wave sequencer, set its BPM to 1/128 and change the second step to SAW. Adjust the play mode to E3, and set the bottom Octave sequencer's first two slots to 1 and 0, and the play mode to L2 so it loops round them. Set its BPM to 1/64. This will give you a very fast lead sound.

3 > Save this patch and load another Unknown 64 CM. Load up the saved patch and change the first row of the arpeggiator (Oct) to C, G, E with a loop setting of L3. This gives us a version of the same arp that plays a major chord rather than just alternating octaves.

> Step by step Making simple synth leads



1 > Memorable bleepy synth leads are a staple of the chiptune aesthetic. To get a really simple lo-fi synth sound, you can use pretty much any virtual analogue synth, using one of the oscillators set to a single-voice waveform. In this case, we're using Sylenth1 for a sawtooth sound. Adding a mono-to-stereo effect widens the sound, which can be useful for fitting it in the mix.

2 > Now we'll create a big arpeggio for the intro. Make a new instance of Sylenth1 and copy the settings we've used here. This patch employs a two-voice detuned sawtooth with a two-voice detuned square wave an octave above it, and a 16th-note arpeggiator that plays over four octaves. Copy the step sequencer settings we've used here.



3 > To create a variation on this arp, save out the patch and bring up another Sylenth1. Load up the patch and change the first oscillator's waveshape from sawtooth to square. Also, turn the Gate knob in the Arpeggiator section down to 44.76%. This gives the arp a shorter, more aggressive, stabby feel.

4 > Our final lead sound is based on a pair of two-voice square wave oscillators, with one of them detuned slightly. Run this through a 1/64th note arp effect set to 4 Octaves and a 50% Gate time. Change the Distortion to Decimate Mode with a 2.19 Amount setting.

Visit the chip shop

There are tons of places on the web that you can go to check out chiptune music. For starters, we recommend the High Voltage SID Collection (hvsc.e64.org), containing a mass of Commodore 64 music, including classic game soundtracks and more recent compositions. You'll need a SID file player, such as sidplay2/w for Windows (www.gsldata.se/c64/spw) or SIDPlay for Mac (www.sidmusic.org/sidplay/mac). If you want a slightly more convenient way to check out some SID music, you can find MP3 versions of SID tracks recorded using a HardSID card (www.hardsid.com) at The SID 6581/8580 Recordings Archive (sid.oth4.com).

For Amiga chiptunes, you can find an enormous collection at amp.dascene.net, with yet more mods at modarchive.org, micromusic.net and www.chiptune.com. The easiest way to hear the files is to use a module player, such as XMplay.

If you aren't sure quite where to start, try the Kohina Internet radio station (www.kohina.com). This site features a convenient in-browser player, alongside streams of various formats, and a huge catalogue of chiptunes to get your lugholes around.

Other oddities that you might find interesting include kindofloop.com, which features shocking chiptune versions of tracks from Miles Davis' classic jazz album *Kind of Blue* and some Daft Punk covers, located at thelemurblog.com/2009/07/15/da-chip.

> Step by step Lo-fi 'vocal' bass



1 > Sample rate reduction effects can be great for making vocal-sounding bass noises. Load up a virtual analogue synth - we're using Sylenth1 - and set one oscillator to a sawtooth shape, and another oscillator down an Octave to a square shape. This gives us a nice, chunky bass tone to play with.

2 > Set filter A to low-pass, and turn the Cutoff down and Resonance and Drive up, as shown. Route the first envelope to the filter Cutoff AB, and dial in a relatively slow Attack, so that the filter opens up over the course of the sound.

3 > Adding a chorus effect can warm the sound up, but the most important effect is the sample rate reduction, which gives the sound its vocal-like quality. Here we set the Cubase BitCrusher's SampleDivider knob to 22, which gives the sound a really nasty lo-fi feel - in fact, this instantly gives almost any sound added chiptune authenticity!

Further reading and viewing

8-BIT SOUNDS IN REASON TUTORIAL

bit.ly/13Ui3i

This guide to making chiptune sounds in Propellerhead Reason show you how to create your own percussion and other 8-bit-style sounds with Subtractor.

RADIOHEAD REMIX - CREEP (8BIT VERSION)

bit.ly/XUtAN

Radiohead's early 90s classic gets re-imagined in a chiptune style. Self-loathing never sounded so bouncy!

MARTIN GALWAY - PARALLAX

bit.ly/2fyHXH

This PC and Mac recreation of the music composition component of Nintendo's Mario Paint is ideal for those looking to create authentic SNES-style music in a stave-based environment.

MARIO PAINT COMPOSER

www.unfun games.com/mariopaint/ This PC and Mac recreation of the music composition component of Nintendo's Mario Paint is ideal for those looking to create authentic SNES-style music in a stave-based environment.

THE HARDWARE CHIPTUNE PROJECT

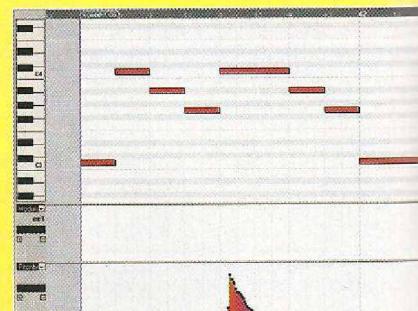
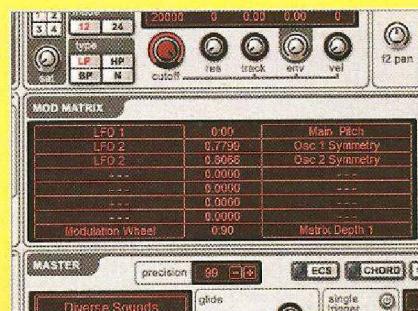
bit.ly/kblpe

This video shows a slammin' chiptune running in its entirety from a single microcontroller chip

> Step by step Pulse-width modulation leads



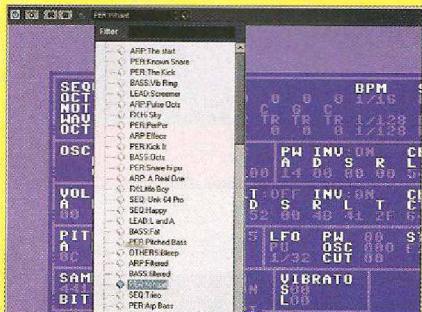
1 > Old-skool audio chips had only a few voices to play with, so creating big sounds using multiple oscillators was rarely an option. An easy way to get extra harmonics from a single oscillator is to use pulse width modulation, à la the C64's SID chip. Here we're using Albino 3. Load the Z_Init preset from the Diverse Sounds category and set the first oscillator's Waveform to pulse.



3 > To create an alternative version of the lead, save the patch and load it up into another Albino 3 - activate oscillator 2 and set it to a pulse Waveform. Tune this oscillator up seven semitones to create a perfect fifth, then set the third line of the modulation matrix to make LFO 2 affect Osc 2 Symmetry at 0.8066.

4 > When programming the MIDI parts for these lead synth sounds, you can use pitchbend to get a more expressive feel. Also, by default, Albino routes the modulation wheel to vibrato amount, and programming in mod wheel curves creates wild 80s-style vibrato effects.

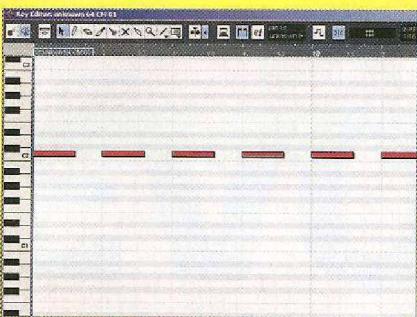
> Step by step Drums and percussion



1 > Not only are arpeggiators useful for creating monophonic 'chords', they can help us get a variety of other sounds, too - even percussion. Begin by loading up Unknown 64 CM in your DAW, and selecting the preset PER:Whaat. Play a note - it's a thumping kick drum.

SEQUENCER										BPM	S ON
OCT	C	C	C	C	C	C	C	C	C	0	1/16
NOT	G	G	G	G	G	G	G	G	G	1/128	E2 0
WAV	TR	TR	TR	TR	TR	TR	TR	TR	TR	1/128	E5 0
OCT	2	0	1	0	-3	0	0	0	0	1/32	E5 0
OSC	PH:32	RING:OSC	PH	INV:ON	CRU:1						
WAV	HAR	HAR	TR	D	S	R	L	T			
OCT	8	1	0	0	0	0	0	0	0	54	2F
VOL	A	D	S	R	L	FILT:OFF	INV:ON	CRU:1			
R	0	0	0	0	0	D	S	R	L	T	CT RS
PIT	0	0	0	0	0	0	0	0	0	0	
AD	0	0	0	0	0	0	0	0	0	0	
SAM	0	0	0	0	0	0	0	0	0	0	
BIT	0	0	0	0	0	0	0	0	0	0	
	000	2007								UNKNOWN	64 CM

2 > Check out the arpeggiator section (called Sequencer). Two of the three arpeggiator components are On: the waveshape and secondary operator sections. These are set to 1/128 - very fast indeed! The sequence lasts for five steps, cycling through a -2 Octave Triangle Wave, white Noise, a +1 Octave Triangle Wave, a root note Triangle Wave and finally a -1 Octave Triangle Wave.



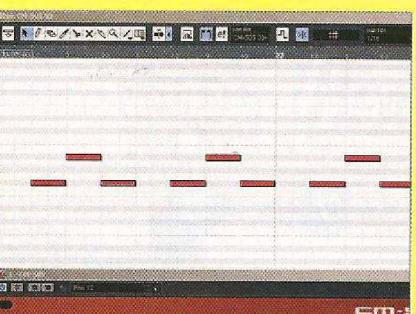
3 > The white noise provides the sound's attack, with the movement from high to low triangle waves providing the typical 'meat' of the kick drum tone. The -2 Triangle Wave at the start gives the sound a bit of low-end thump. Now program a simple 4/4 kick drum pattern, as shown.

SEQUENCER										BPM	S ON
OCT	C	C	C	C	C	C	C	C	C	0	1/16
NOT	G	G	G	G	G	G	G	G	G	1/128	E2 0
WAV	TR	TR	TR	TR	TR	TR	TR	TR	TR	1/128	E5 0
OCT	2	0	1	0	-3	0	0	0	0	1/32	E5 0
OSC	PH:32	RING:OSC	PH	INV:ON	CRU:1						
WAV	HAR	HAR	TR	D	S	R	L	T			
OCT	8	1	0	0	0	0	0	0	0	54	2F
VOL	A	D	S	R	L	FILT:OFF	INV:ON	CRU:1			
R	0	0	0	0	0	D	S	R	L	T	CT RS
PIT	0	0	0	0	0	0	0	0	0	0	
AD	0	0	0	0	0	0	0	0	0	0	
SAM	0	0	0	0	0	0	0	0	0	0	
BIT	0	0	0	0	0	0	0	0	0	0	
	000	2007								UNKNOWN	64 CM

4 > Open up another Unknown 64 CM and this time select the PER:Known Snare patch. Note that, while the bottom row of the arpeggiator is active on this patch, it doesn't actually have any effect on the sound, because the only steps that it changes the pitch on are set to Noise Waves. To create the snare sound, the synth simply cycles through Triangle, Noise, Pulse and Noise Waveforms.



5 > Sequence the snare on every second beat, as we have here. To give the sound extra width, add a 'stereoiser' effect, such as Cubase's MonoToStereo. This gives the mono synth sound a pleasing stereo spread, and stops it occupying the same space as the kick, which sits firmly at the centre of the mix.



6 > Let's add some more percussion courtesy of CM-505 (on the DVD). Program this simple beat using the default drum kit. The sound is too hi-fi to pass for chiptune, so add a sample rate reduction effect. Here we've used Cubase's BitCrusher, with the SampleDivider set to 7 to get the effect of an appropriately low sample rate.

Chiptune in other genres

RUSKO - BIONIC COMMANDO

bit.ly/3aVqX

A rinsing dubstep interpretation of the *Bionic Commando* theme, commissioned to promote the 3D remake of Capcom's 80s arcade classic. The track is also available in DnB and electro flavours, remixed by Clipz and Surkin respectively.

BECK - BAD CARTRIDGE

bit.ly/hJP5E

Who would have thought mentalist lo-fi funkster Beck would have a soft spot for videogame sounds? His album *Guero* is laced with such audio references, and this remix of *E-Pro* takes the sound to its logical, chip-tastic conclusion.

ZOMBIE NATION**- KERNKRAFT 400**

bit.ly/176HkP

Sampling a refrain from David Whittaker's soundtrack to the 8-bit game *Lazy Jones*, this dirty slice of electro house brought the sound of chiptune to the pop charts and mainstream dance floors.

NELLY FURTADO - DO IT

bit.ly/dPbMK

Timbaland's SID chip-sampling, controversy-causing classic might sound uncomfortably similar to *Acidjazzed Evening*, but legal wrangles aside, it's an undeniably catchy slice of pop music.

50 CENT FT. JUSTIN TIMBERLAKE & TIMBALAND - AYO TECHNOLOGY

bit.ly/Rhjml

More arpeggiator-powered riffs from Timbaland, with an epic sound that's truly retro and futuristic at the same time.

SUPER COCOA BRUVAS**- SUPER BROOKLYN**

bit.ly/Di2OD

The NYC rappers use the sounds of the original *Super Mario Brothers* (specifically the ultra-funky underground cave theme) as the backing to their hardcore rhymes.

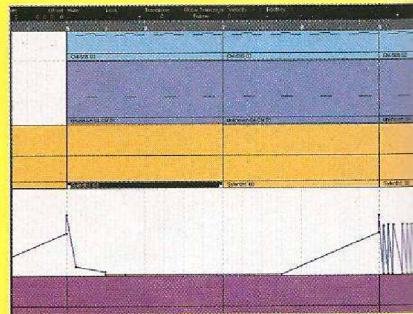
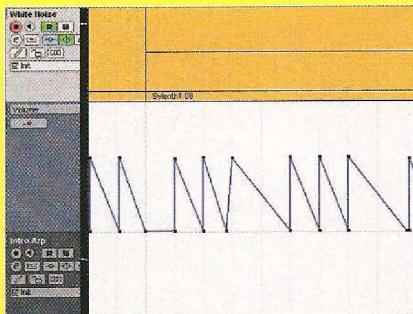
POWER PILL - PAC MAN

bit.ly/9SrOH

This cheeky track from Aphex Twin is a relatively classy example of the spate of poppy rave tracks from the early 90s that rehashed classic game music. See *Ambassadors of Funk* featuring MC Mario's *Super Mario Land*, Dr Spin's *Tetris* and Hedgehogs With Attitude's *Supersonic* to hear its less tolerable contemporaries.

> Step by step

Drums and percussion continued

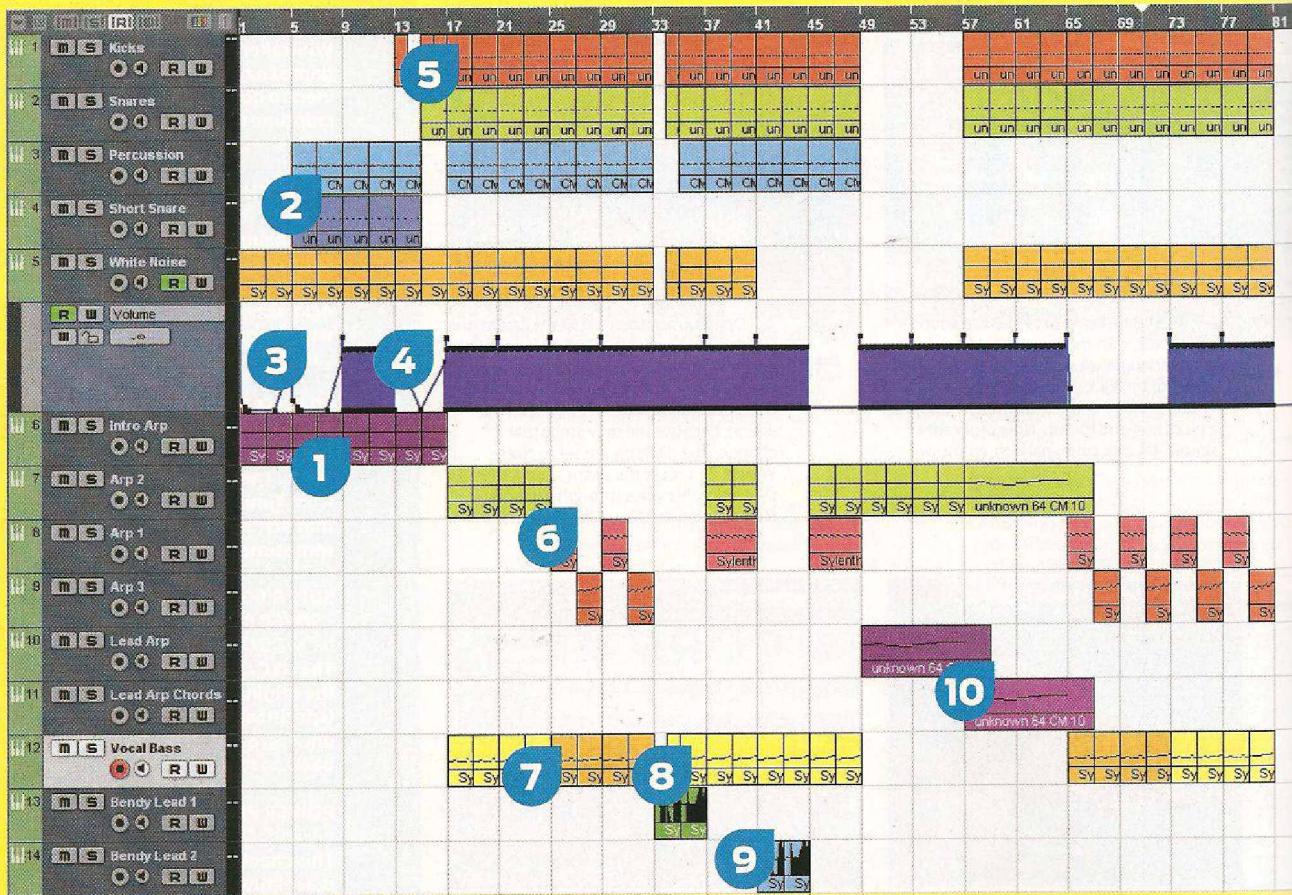


7 > We need to get some more hats and cymbal sounds in there. Thankfully, lo-fi versions of these noises are easy to create – you just need a synth with a built-in noise generator, such as Lennar Digital's Sylenth1. Set Oscillator A1's Wave to a noise shape, and create a MIDI part that plays for the whole bar.

8 > When this is played back, you'll get a wall of noise. To turn this into useful percussion, you just need to automate the track's volume level. Here, we've created open and closed hi-hat effects using downward ramps of various lengths. Add a BitCrusher effect to reduce the sample rate and make the sound more lo-fi: we've gone for a SampleDivider rate of 2.

9 > You can also use the white noise to create cymbal crashes and other similar sounds. Here, you can see how the volume level falls quickly, then slowly, to create a typical crash effect – it then slowly rises back up to generate an approximation of a reverse crash.

Putting it all together



1 The intro kicks off with the simple, relatively slow arpeggiator lead, which entices the listener with its lo-fi charm.

2 Before the beat kicks in, a pared-down version of the percussion pattern is introduced, with a less dominant kick.

sound, so as not to over-power the intro.

3 These slow volume envelopes on the white noise channel create cymbal and reverse crash effects.

4 Yet longer envelopes are used to get a

bigger, more sweeping noise effect that builds up to the drop.

5 A simple drum fill leads us nicely into the drop. Once there, the white noise ducks out quickly when the snare plays to give the sound added impact.

6 To create a bit of variety, the track switches between different arp sounds, helping maintain the listener's interest.

7 The bassline changes to complement the different arp patterns at this stage, denoted by the

variety of differently coloured MIDI parts.

8 This cheeky gap hints at a breakdown, but the beats and bass kick back in after a single bar's respite.

9 These bendy leads use the chiptune

staples of portamento and pitchbend to get their expressive sound. Note that the second version has an added fifth.

10 The second lead rapidly cycles through the notes of a major chord to create a bouncy crescendo.

Next issue **cm/145**

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